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MENTAL HYGIENE AND ITS RELATIONSHIP TO THE MEDICAL PROFESSION *

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The mental hygiene movement was formally inaugurated in the United States in 1908. In this year, Clifford W. Beers, a young Yale graduate, published his autobiography, A Mind That Found Itself, which contained a graphic description of his treatment and his feelings during a severe and somewhat protracted psychosis from which he had only recently recovered. As a consequence of his experiences, he decided to devote his life to the amelioration of conditions of the mentally ill, and sought to establish an organization or society with this aim in view. He appealed to Adolf Meyer for a suitable name for such a society, who offered "mental hygiene" as implying amelioration as well as prevention. In 1908, Beers organized the Connecticut Society for Mental Hygiene, the preliminary prospectus containing, among other excellent plans, the following:

> The society shall exert influence to have courses in psychiatry established wherever there is a medical school, and practicing physicians shall, so far as possible, be drawn into close touch with these centers of enlightenment and with the modern hospitals which will eventually be brought under the control of our universities.

In 1909, the National Committee for Mental Hygiene was organized with headquarters in New York City as a further development of Beers' plan. It has been engaged in a variety of important work, with aims and functions as follows:

> The National Committee for Mental Hygiene, directly and through its affiliated state societies and local committees, works for the conservation of mental health; the reduction and prevention of mental and nervous disorders and defects; the improved care and treatment of those suffering from mental diseases; the special training and supervision of the feeble-minded; and the acquisition and dissemination of reliable information on these subjects and on mental factors involved in the problems of education, industry, delinquency, and others related to the broad field of human behavior.
>
> The committee seeks to accomplish its purposes by stimulating research into the nature and causes of nervous and mental diseases and defects; conducting surveys and studies of mental hygiene problems; applying the knowledge gained from such studies, through education and the promotion of beneficial legislation; encouraging psychiatric social work; assisting in the establishment of child-guidance and other mental hygiene clinics; developing trained personnel; and cooperating with governmental and unofficial agencies whose work touches at any point the field of mental hygiene.[1]

In May, 1930, the first International Congress of Mental Hygiene was held in Washington, D. C., giving opportunity for the representatives of more than fifty countries to present papers and discuss topics related to the prevention of mental disease and the maintenance of mental health.

This brief historical sketch of the mental hygiene movement in the United States gives testimony to the fruitful efforts of its founder. Much remains to be done. Neuropsychiatrists have had the chief interest in the movement. The study reported here has been projected with the idea of ascertaining some of the relationships of the general practitioner of medicine to the mental hygiene movement.

Interviews have been held with 103 physicians practicing medicine and surgery within a radius of 75 miles of Albany, in order to learn something of their interest in neuropsychiatry. Except in the case of a few whose practice tended chiefly toward obstetrics or pediatrics, there were few, if any, outright specialists in the group. To the kindness and cooperation of these men I am indebted for the data contained in this study. The chief criterion for selecting these rather than other physicians was their willingness to be interviewed. About two thirds of them are graduates of the Albany Medical College, where there has been a well established neuropsychiatric tradition for about thirty years. The other third are graduates of Harvard, Johns Hopkins, Yale and other medical schools. The practice of most of them was in a town or a city, although a portion of the practice of many, and all of the practice of a few, was distinctly rural. A few had been in practice over fifty years, but the average period was about eighteen years.

The questions asked in the interviews, together with answers and some comments, are as follows:

1. *What percentage of patients that consult you would you guess have no very definite bodily disease as a basis for their complaints?*

Of eighty physicians interviewed on this subject, the range of answers was from 1 to 90 per cent, with an average of 19.7. The physicians practicing no surgery recorded distinctly higher percentages. Over three fourths of those interviewed had observed that some misfortune might cause a severe illness, such as depression with insomnia, anorexia, distress referred to various parts of the body, or the decided aggravation of an existing somatic disease. About an equal group had observed similar illnesses in other patients without

* Survey carried on in conjunction with Department of Regional Extension, Albany Medical College.

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Twenty Years of Mental Hygiene, published by American Foundation for Mental Hygiene, Inc., 1930.

any known misfortune to serve as an aggravating or etiologic factor.

2. *Approximately how many patients do you send to a hospital (state or private) for nervous or mental diseases each year? (average).*

Of ninety-four physicians discussing this question, the answers ranged from none to thirty, with an average of slightly over seven. They declared that these patients required much more time than other types of patients, and many physicians were frank in declaring that their understanding of them was not as effectual as they would wish. If the physicians had an opportunity to follow the course of these cases after hospitalization as closely as they would patients with pneumonia, their knowledge of such disorders and their treatment would approximate that in other fields of medicine in a few years.

TABLE 1.—*Attitude of Some General Practitioners Toward Neuropsychiatric Problems*

	"No Interest"	"Little, Moderate, Casual, Slight" Interest	"Much Interested"	Total Number Interviewed
Nervous patients.....	12	55	28	95
Mental patients.....	25	56	12	93
Neurologic lesions of brain, cord, nerves...	9	56	26	91

3. *To what extent are you interested in* (a) *nervous patients,* (b) *mental patients,* (c) *diseases or conditions in which the brain, spinal cord or nerves are affected?*

The answers to this question are reported in table 1. The correlation between the length of time since graduation and the interest in this special field is not pronounced. Interest seemed often to be centered about a problem in differential diagnosis, such as goiter and nervousness, gastric disease and "gastric neurosis," or heart disease and "cardiac neurosis." One can see that hitherto the major emphasis in developing the physician's concept of disease has been organic pathologic changes. Important as this is, it should not interfere with the acquisition of a broader concept including disease or distress of the person as a whole. The nervous system has not generally been given the consideration that it deserves.

4. *How often do parents consult you about the troublesome misbehavior or disobedience of their children?*

Of ninety-eight physicians interviewed, thirteen said that they were never consulted; sixty-one said that they were occasionally or rarely asked about such problems, and twenty-four said that they had frequent or many inquiries from parents about problems of this kind. It would seem that a function of child guidance has been in the hands of the general practitioner and that these men are to be credited with the early recognition of many such problems.

5. *Have you treated patients with nervous breakdowns who recovered under your care?*

Of 103 interviewed, 81 said "yes." About 90 per cent of the physicians admitted that there were patients with mental diseases in their communities who might be benefited by treatment in a hospital for mental diseases. The opportunity for physicians in private practice to learn by experience from such cases would seem to be excellent, especially if they should tackle such problems with the same zest and curiosity which the late Sir James McKenzie, a general practitioner, displayed toward cardiac disorders. It should be encouraging to remember that notable success was achieved by a general practitioner in the care of Lincoln during his melancholia and that marked preference was shown for his ministrations rather than for those of the specialist consulted during his illness.[2]

6. *What do you know about the mental hygiene movement?*

Of ninety-nine interviewed, forty-six declared that they knew nothing; forty-eight said "not much," "very little" or "only a vague idea"; while five were well informed.

7. *Has the mental hygiene movement helped you in any way?*

Thirteen answered "yes;" eight said "some," "questionable," "little"; while seventy-seven replied "no." Between one fourth and one half of those interviewed expressed a desire to know more about the mental hygiene program and stated that they felt its usefulness to them would depend on more information about it. The mental hygiene movement has doubtless helped these physicians more than they realize, but its field has not extended far enough beyond large cities and has not given as much support to the general practitioner as the movement holds in store.

8. *What has been the source of most help to you in caring for nervous or mental patients?*

The replies are given in table 2.

These efforts give excellent testimony to the resourcefulness of men not especially trained for the care of such patients.

9. *What special inquiry do you make regarding a patient's* (a) *feelings or emotions?* (b) *thoughts?* (c) *behavior?*

The answers to this inquiry were difficult to evaluate. It is safe to say that these factors are considered and estimated vaguely but not systematically by most physicians. While one might predict closely the degree of anemia of a patient by a glance at his tongue, no physician would be entirely content with such an estimate and, while one might otherwise ascertain the presence of fever, the thermometer is usually employed. Likewise, in taking the history at the bedside of patients, there is need for a more systematic review of the emotional status, the trend of thought and preoccupation, and the details of the behavior of every patient no matter what disease he may appear to have. Slight and almost negligible changes are often more important than they seem to be.

TABLE 2.—*Sources of Help in Caring for Patients*

	Number
(a) Help derived from contacts with state or private institutions, state department of mental hygiene, state clinics, internship in hospital for mental patients....	21
(b) Consultation by a psychiatrist.....	19
(c) Better knowledge from studying textbooks, medical journals, exchange of experience in contact with members of county medical society.....	10
(d) Changing the patient's environment.....	6
(e) Painstaking study of all factors in case and thus gaining confidence of patient.....	6
(f) Physical therapy.....	5
(g) Assistance of family.....	4
(h) Sedative drugs.....	3
(i) Remove source of worry, amusement, psychotherapy....	2 each
(j) County nurse, better associates for patient, common sense, acquaintance with a physician who had a breakdown	1 each

2. Clark, L. P.: A Psychologic Study of Abraham Lincoln, Psychoanalytic Review, Aug. 1, 1921.

From the interviews one would gain the impression that, despite large islands of lack of interest in the group interviewed, there are also opportunities, not only among the present generation of practitioners, but also those of the future, to bring about a mutual cooperation between the medical profession and the mental hygiene movement. While the mental hygiene movement touches life quite generally in such realms as religion, education and economics, it cannot be ignored that mental disease often confronts the general practitioner in its incipience, and for this reason he is peculiarly situated to render prophylaxis or first aid, as it were, and thus make a substantial contribution to mental health. His continuous and intimate contact with the children and the home gives further abundant opportunities. Much, of course, depends on the interest which his earlier training has aroused.

Because the mental hygiene movement is essentially a special aspect of the public health program, it may not be going too far astray, misleading as analogies may be, to compare it with the greater public health movement of which it is a part.[3] People have been interested in physical cleanliness for ages. They have achieved it by devious and sometimes questionable methods. Its counterpart in mental hygiene may have been the urge of the Greeks to keep their thoughts pure and to nourish their love of beauty. In the Middle Ages, quarantine was the most effective method of controlling epidemic diseases. Likewise, its counterpart has been the isolation of mental patients: earlier, as a practical measure designed merely for the protection of society; now, primarily for its therapeutic value to the patient. In modern times, knowledge of the etiologic factors in such diseases as malaria, smallpox, typhoid and diphtheria has reduced the incidence of these diseases markedly. The counterpart of this in the field of mental hygiene includes not only knowledge of infections but also information relative to human constitution, heredity, trauma, the effect of personal and social factors, recreational habits and stimuli, the wear and tear of life in consuming adaptive reserves, and the very fabric of behavior as revealed by detailed studies of children. Much fundamental research will doubtless be done in order to emphasize facts in the movement rather than theories. But the public health movement, much as it needs these facts, realizes the limitations of unapplied information; hence the widespread dissemination of knowledge by education is basic and essential. This constitutes the modern trend of the public health program. The mental hygiene movement is educating the public. It is a popular and fascinating campaign which has barely begun, and has not yet had time to make universal contact.

We must do what we can to circumvent the fulfilment of the prophecy of Walt Whitman, which is threatening us:

> Go on, my dear Americans, whip your horses to the utmost—excitement! money! politics!—open all your valves and let her go—swing, whirl with the rest—you will soon get under such momentum you can't stop if you would. Only make provision betimes, old states and new states, for several thousand insane asylums. You are in a fair way to create a whole nation of lunatics.[4]

What may be done? Every medical school should have personnel and facilities for teaching neuropsychiatry. Students should be awakened to an interest in the recoverable types and the milder psychiatric problems "going to waste" in general medical and surgical wards. We should teach students to assay the assets as well as the liabilities of patients; thus therapy often depends more on the residuum, or good qualities, than on faults or lesions present.[5] We are, as yet, far behind this ideal.[6] We have doubtless emphasized older institutional psychiatry so much in the past that students have failed in a measure to recognize the onset of diseases, have ignored or even made light of certain milder but, nevertheless, distressing syndromes. The time has long since come when men practicing medicine and surgery should be more thoroughly informed about what neuropsychiatry can offer, not so much with regard to puzzling diagnostic classification, but by giving the patient the benefit of fair and hopeful therapeutic advantages. Few realize this more than the general practitioners themselves.

The existing hospitals, state and private, might become even better centers for the dissemination of knowledge and serve as perpetual training centers for the physicians as well as the laity of the community.[7]

It should be kept in mind that the physician of the future, as the result of the growth of population, modern methods of speeding up the activities of man, and the progressive elimination of infectious disease, will have less of severe infection to treat. On the other hand, he will have more of the product of the subtle influences which society, economics, and very personal factors exert on the individual, producing syndromes sometimes closely resembling organic disease, frequently associated with it, but which are, nevertheless, disabling and distressing.

Ray Lyman Wilbur[8] in a recent address has stated it well:

> Early detection is fundamental in this field. Our youth must be better understood and better handled. We have yet to work out the methods for such detection, to train the men in them, and to train the medical profession. So far as insanity is concerned, the public is largely still in the dark ages, and the medical profession is in the twilight zone.

SUMMARY

1. The history of the mental hygiene movement in the United States is briefly reviewed.

2. The results of interviews among 103 physicians practicing medicine and surgery relative to their interest and problems in neuropsychiatry are presented.

3. There is need and desire for more knowledge of mental hygiene among these practicing physicians.

4. Mental hygiene is part of a public health movement depending on knowledge and education in which the medical profession of the future will be required to take a larger responsibility.

ABSTRACT OF DISCUSSION

DR. BRONSON CROTHERS, Boston: Physicians who are not specialists in mental disease are placed in a difficult position by the mental hygiene movement. Those who entered practice more than ten years ago are in a peculiarly bad way. In general they are asked to accept minor commissions in an army in which the leaders have educated the intelligent rank and file of the laity more energetically than they have physicians. One who settles down to a study of the psychiatric and mental hygiene literature of the last twenty years finds two sorts of articles:

3. Winslow, C. E. A.: The Evolution and Significance of the Modern Public Health Campaign, Yale University Press, 1923.
4. Horace Traubel: With Walt Whitman in Camden (volume I).
5. Crothers, Bronson: Mental Hygiene Problems of Children with Sensory Motor Defects, New England J. Med. **204**: 481 (March 5) 1931.
6. Ebaugh, F. G.: Some Present-Day Trends in the Teaching of Psychiatry, J. Nerv. & Ment. Dis. **73**: 384 (April) 1931.
7. Jackson, J. A.: The Rôle of the State Hospital in Mental Hygiene, J. A. M. A. **96**: 1000 (March 28) 1931.
8. Wilbur, R. L.: Mental Health as a National Problem, J. A. M. A. **96**: 994 (March 28) 1931.

For specialists in mental disease there is a large scientific literature, much of it highly controversial and relatively little of it very definite. This controversial and inconclusive status is obviously correct. When one considers that psychiatry has changed from a descriptive science carried on, for the most part, by individuals whose main preoccupation was the kindly and pessimistic custody of deteriorated persons to a science led by men vividly interested in education, delinquency, sociology and other stimulating and hopeful approaches to the problem, it is no wonder that vigorous and cheerful disagreement is almost the rule. The lay and the general medical public is furnished a different intellectual fare. A genuine effort is being made to formulate statements which will convey to all intelligent people a fair impression of the present assets of the modern science of psychiatry. This effort is clearly sound. It is possible, however, to quarrel with certain efforts to arouse general interest in the whole subject. Obviously the number of inmates of custodial institutions is a matter for urgent concern. It is an easy step to assert that modern psychiatrists, with general and generous support from the community, can reduce the incidence of disorders leading to social bankruptcy or even eliminate them. The slogan "Mental disease is preventable, mental health is procurable" is an excellent one. The difficulty comes in backing up the slogan by facts. Facile analogies between mental and physical diseases are subject to the same objections. The general practitioner is admittedly a necessary element in any efficient mental hygiene program. His present lot is not a happy one. He is told what is expected of him as to results but given little information as to procedure. To my mind the greatest unsolved problem in the field of psychiatry is the psychiatric education of the practitioner. It is certainly futile to expect physicians to do good work as leaders if they are given the same information that is regarded as suitable for laymen in general. It is obviously absurd to suppose that they will all receive the prolonged training which is regarded as suitable for specialists in psychiatry. I am convinced that there is such a thing as "psychiatric intelligence," in the phrase of Dr. Esther Richards, which can be developed by general practitioners. I am not at all convinced that the most effective methods for developing it have been worked out. Two definite plans should be tried out. First, the psychiatrists should be urged to continue their efforts to teach. On the other hand, it is entirely open to any one to attempt to learn without a formal teacher. The eager and intelligent physician may find ways of selecting information and attitudes, which for him are more effective than those chosen for him. In any case a hopeful, interesting and profitable field of effort is open to the practitioner. Much has been written which suggests that the field of mental hygiene is relatively unoccupied. This idea seems to me of doubtful validity. I should think it was overcrowded. It is admittedly difficult to classify and appraise the people who are giving advice. Psychiatrists, psychologists, progressive teachers, educators of parents, informal and formal child guidance organizations are in the field already. It is, however, perfectly clear that the very confusion which now exists furnishes the best of reasons for active and persistent interest by general practitioners.

DR. GEORGE B. LAKE, Chicago: Physicians are going to have a difficult time in doing anything to popularize mental hygiene and in teaching parents so to regulate the psychic environment of their children that they may grow up into a psychically wholesome adulthood, until they educate the parents to the point at which physicians can talk about psychic disorders as freely as they talk about physical disorders. It seems to me that that education is one of the things that every physician, be he psychiatrist, pediatrician, internist, general practitioner or whatever the case may be, can be giving to the individuals with whom he comes into contact, and can be giving to his community in a thoroughly impersonal and perfectly ethical way, so as to prepare the public for the kind of things that the psychiatrists are ready to give them, in connection with the upbuilding of mental hygiene.

DR. TOM A. WILLIAMS, Miami Beach, Fla.: I do think that it would be a mistake to endeavor to train every general practitioner as a psychiatrist; for the training requires years. Mental hygiene is not sufficiently understood by the general practitioner, the pediatrician especially. Perhaps, too, social workers are out of sympathy with the profession at large. They are willing to collaborate only with their particular psychiatrist. The solution seems to me a simple one. It is not different from that in any other medical specialty. All patients should first go to the family doctor, and he ought to know that there are certain forms of mental illness which he does not understand. He sends his patients to ophthalmologists, surgeons and pediatricians, but he does not consult sufficiently the practicing neurologist, who has approached psychiatry through medicine and neurology and who is more sympathetic to the problems of the general practitioner and pediatrician than is the man who is solely a psychiatrist. Frequent consultation with neurologic colleagues will gradually teach practitioners the kind of problems to be dealt with, and the simpler problems they will later learn to deal with themselves. In that way the profession will gradually become educated psychiatrically.

DR. LLOYD H. ZIEGLER, Albany, N. Y.: Because of time limitation, I could not read some of my own comments about the results of these interviews. I know that the men who have said "no" to some of the questions about mental hygiene have been benefited probably more than they realize by the mental hygiene movement. There is a tendency in my community for certain physicians to have more interest in the psychiatric problems of patients than other practitioners. Cases are referred to them or come to them which keep this interest alive and they have developed skill in the care of such problems, though they do not profess to have special knowledge or skill in psychiatry. When these men have cases too difficult to care for with their facilities they consult neuropsychiatrists. In this way the practitioners of medicine with interest in the work may develop diagnostic and therapeutic resources and profit by the special training of the neuropsychiatrist. In the majority of communities the number of practitioners interested in such problems is too small.

ETIOLOGY OF INFLUENZA

TRANSMISSION EXPERIMENTS IN CHIMPANZEES WITH FILTERED MATERIAL DERIVED FROM HUMAN INFLUENZA *

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During the last forty years the problem concerning the etiology of influenza has passed through two definite periods. Following Pfeiffer's [1] announcement of the discovery of an organism which he believed to be the cause of influenza, numerous investigations were carried out on the isolation of this organism and these studies rapidly confirmed Pfeiffer's assertion. Thus the term "influenza," which previously had been used to describe a clinical condition, gained an etiologic significance and it was generally considered that Pfeiffer's bacillus was the causal agent of this disease.

However, more extensive investigations during the pandemic of 1918-1919 and during the succeeding epidemics have tended to cast doubt on the validity of Pfeiffer's interpretations. From a mass of conflicting reports, four schools of thought regarding the etiology of influenza have developed; one which regards Pfeiffer's bacillus as the cause, another which believes that a green-producing streptococcus is involved, a third

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* From the Department of Medicine and the Clinical Laboratory of the John J. Abel Fund for Research on the Common Cold, Johns Hopkins University School of Medicine.
* Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.
1. Pfeiffer, R.: Die Aetiologie der Influenza, Ztschr. f. Hyg. u. Infektionskr. **13**: 357-386, 1893.

which considers that a cultivable minute filter-passing anaerobic organism is related to the disease, and finally the group which believes that the etiologic agent of influenza is a true filtrable virus.

The literature covering the etiology of influenza is extensive and has been ably reviewed in English by Jordan,[2] Zinsser [3] and Olitsky.[4] In general, attempts at experimental transmission of the disease to man and the lesser apes by means of pure or mixed cultures of Pfeiffer's bacillus have been unsatisfactory. Pfeiffer's original experiments were very indefinite. Blake and Cecil [5] reported in 1920 that "*Bacillus influenzae* can initiate in normal monkeys an acute infection of the upper respiratory tract which may be complicated by acute sinusitis, tracheobronchitis, hemorrhagic edema of the lungs, bronchiolitis and bronchopneumonia. This disease appears to be essentially identical with influenza with respect to its clinical cause, symptoms and complications. . . . Although it seems reasonable to infer from the results of the experiments that *Bacillus influenzae* is the specific cause of influenza, a definite conclusion is not permissible, since it is impossible to determine whether the respiratory disease produced in monkeys is identical with influenza or merely similar to it. The experiments are advanced, therefore, as evidence in favor of the etiologic relation of *Bacillus influenzae* to influenza." Later Cecil and Steffen [6] inoculated pure cultures of virulent influenza bacilli into the throats of healthy volunteers, all of whom developed an acute afebrile disease, which, as the authors stated, was similar in many respects to influenza, "but falling short of the typical clinical picture."

During the late pandemic, Mathers,[7] Tunnicliff [8] and Rosenow [9] brought the green-producing streptococci into prominence as possible etiologic agents in influenza. In a recent monograph, Falk and his associates [10] reported that they considered peculiar pleomorphic green-producing streptococci as being "etiologically related to the influenza outbreak in Chicago in the winter of 1928-1929."

In a series of experiments extending from 1919 to 1926, Olitsky and Gates [4] have described a minute filter-passing organism isolated from Berkefeld V and N filtrates of rhinopharyngeal washings in patients ill with influenza. The actual relationship of this minute organism to the incitant of influenza is not clear and, as Gates [11] stated in 1926, " a large accumulation of observational and experimental evidence must be sought wherever available and pieced together as opportunities permit" before this relationship is settled.

The rôle played by filtrable agents in the production of disease was not well understood when the pandemic of 1889-1890 occurred, and it was not until 1918-1919 that attempts were made to demonstrate a filtrable virus in influenza. The reports of Nicolle and Lebailly [12] and Yamanouchi and his co-workers [13] are interesting. Nicolle and Lebailly were able to reproduce what they considered to be influenza in one monkey and two human volunteers by means of inoculations with filtrates of bronchial secretions obtained from individuals ill with influenza. The incubation period in all instances was five days. Yamanouchi and his associates inoculated numerous human volunteers with filtered influenzal sputum and with blood filtrates from patients ill with influenza. All the inoculated volunteers, except those who had passed through an attack of influenza prior to the experiment, developed influenza. The incubation period was from twenty-four to forty-eight hours.

During the pandemic of 1918-1919, extensive carefully controlled experiments on man were carried out by Rosenau, McCoy and their associates.[14] Attempts were made to transmit influenza to healthy volunteers by means of pure cultures of Pfeiffer's bacillus, mucous secretions from patients ill with influenza, filtrates of these secretions, direct contact of the volunteers with

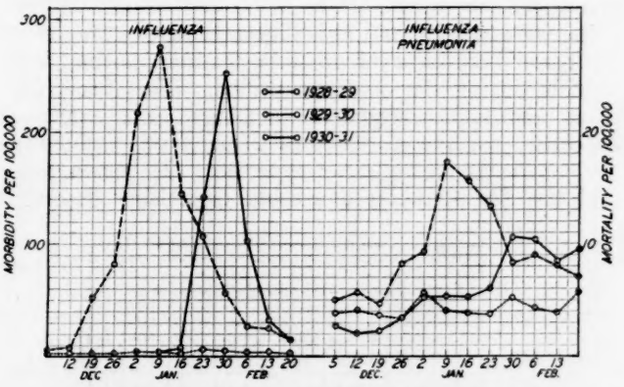

Chart 1.—Incidence of influenza in Baltimore during the winter months from 1928 to 1931, and mortality from influenza and pneumonia in Baltimore during the winter months from 1928 to 1931.

influenza patients, and mixed cultures of organisms derived from influenzal sources. Although these experiments were carried out in widely separated communities and under favorable conditions, uniformly negative results were obtained.

Recently Dochez, Shibley and Mills [15] in their communication on the transmission of common colds to anthropoid apes and human beings by means of a filtrable agent said: "In December, 1929, three of our animals acquired acute upper respiratory infections three or four weeks after having had colds. Clinically these infections closely resembled the influenzal type, which was then epidemic and from which our animal men were suffering. Although very slight, this evidence points to the assumption that influenza and colds are separate entities." This report, coupled with the success of the same investigators in transmitting "com-

2. Jordan, E. O.: Epidemic Influenza, Chicago, American Medical Association, 1927.
3. Zinsser, Hans: Etiology and Epidemiology of Influenza, Medicine **1**: 213-309 (Aug.) 1922.
4. Olitsky, P. K.: Studies on the Bacteriology of Epidemic Influenza, Medicine **9**: 387-409 (Sept.) 1930.
5. Blake, F. G., and Cecil, R. L.: Studies on Experimental Pneumonia: Production in Monkeys of an Acute Respiratory Disease Resembling Influenza by Inoculation with Bacillus Influenzae, J. Exper. Med. **32**: 719 (Dec.) 1920.
6. Cecil, R. L., and Steffen, G. I.: Acute Respiratory Infection in Man Following Inoculation with Virulent Bacillus Influenzae, J. Infect. Dis. **28**: 201 (March) 1921.
7. Mathers, G.: The Bacteriology of Acute Epidemic Respiratory Infections Commonly Called Influenza, J. Infect. Dis. **21**: 1 (July) 1917.
8. Tunnicliff, Ruth: Phagocytic Experiments in Influenza, J. A. M. A. **71**: 1733 (Nov. 23) 1918; Observations on Green-Producing Cocci of Influenza, J. Infect. Dis. **26**: 405 (May) 1920.
9. Rosenow, E. C.: Studies in Influenza and Pneumonia: III. The Occurrence of a Pandemic Strain of Streptococcus During the Pandemic of Influenza, J. A. M. A. **72**: 1608 (May 31) 1919.
10. Falk, I. S.; Harrison, R. W.; McKinney, R. A., and Stuppy, G. W.: Experiments on the Etiology of the Influenza Epidemic of 1928-1929, Am. J. Hyg. (monographic series), number 11, January, 1931.
11. Gates, F. L.: Bacterium Pneumosintes in Clinical Influenza in New York City in 1926, J. Exper. Med. **44**: 787-794 (Dec.) 1926.
12. Nicolle, C., and Lebailly, C.: Recherches expérimentales sur la grippe, Ann. de l'Inst. Pasteur **33**: 395-402, 1919.
13. Yamanouchi, T.; Sakakami, K., and Iwashima, S.: The Infecting Agent in Influenza, Lancet **1**: 971 (June 7) 1919.
14. Rosenau, M. J.; Keegan, W. J.; Goldberger, Joseph; and Luke, G. C.: I. Series of Experiments at Boston, November and December, 1918. III. Series of Experiments at Boston, February and March, 1919, Bull. 123, 5 and 54, Hyg. Lab. U. S. P. H. S., 1921. McCoy, G. W., and Richey, De W.: Series of Experiments at San Francisco, November and December, 1918, Bull. 123, 42, Hyg. Lab., U. S. P. H. S., 1921.
15. Dochez, A. R.; Shibley, G. S., and Mills, K. C.: Studies in Common Cold: Experimental Transmission of Common Cold to Anthropoid Apes and Human Beings by Means of a Filtrable Agent, J. Exper. Med. **52**: 701-716 (Nov.) 1930.

mon colds" to chimpanzees, led us to believe that the great apes might be susceptible to infection with material derived from human influenza.

Four young chimpanzees between 2 and 3 years of age were available for transmission tests. These had been isolated for two months before the onset of the influenza epidemic in Baltimore. During this period one ape had been successfully inoculated with a "common cold." The other three had remained in good health. The attendants and observers donned masks and gowns and washed their hands thoroughly before coming in contact with the animals. The effectiveness of isolation can be judged from the fact that no accidental infection occurred during the isolation period. White blood cell counts, cultures of the rhinopharynx and rectal temperatures were taken in each animal before inoculation and in three of the apes a definite base line was established prior to their infection.

The patients from whom the inoculum was obtained were selected with care. Every effort was made to study early uncomplicated influenza and in each instance the clinical course of the disease was carefully followed. Cultures of the rhinopharynx and rhinopharyngeal washings, white blood cell counts and the urine were studied and in addition numerous studies of the upper respiratory flora were made in normal individuals during the epidemic period. The throat cultures and rhinopharyngeal washings were examined especially for the presence of *Hemophilus influenzae*, *Streptococcus hemolyticus* type beta, *D. pneumoniae* and the filter-passing anaerobic organisms described

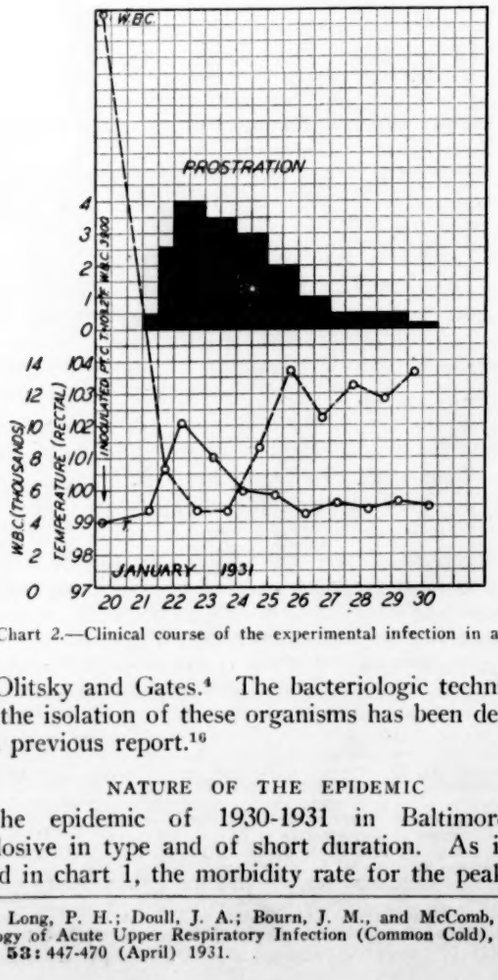

Chart 2.—Clinical course of the experimental infection in ape 1.

by Olitsky and Gates.[4] The bacteriologic technic used for the isolation of these organisms has been described in a previous report.[16]

NATURE OF THE EPIDEMIC

The epidemic of 1930-1931 in Baltimore was explosive in type and of short duration. As is indicated in chart 1, the morbidity rate for the peak week approached that of the peak week of the epidemic of 1928-1929. However, the total attack rate was lower during the recent epidemic. The mortality rate of combined deaths from influenza and pneumonia was much lower in the epidemic of 1931 than in the epidemic of 1928-1929.

THE CLINICAL NATURE OF THE DISEASE

The diagnosis of "influenza" is uncertain because of the protean manifestations of influenza and the lack of

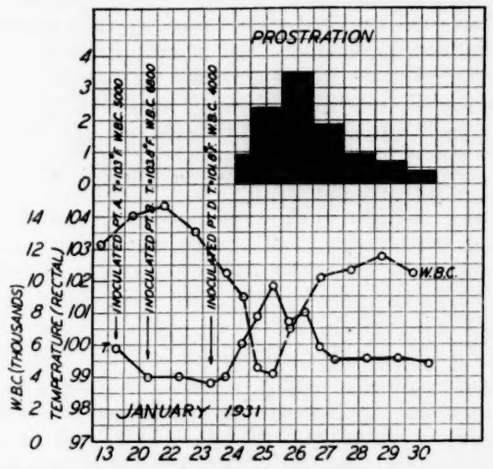
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Chart 3.—Clinical course of the experimental infection in ape 2.

definite etiologic knowledge. In discussing the symptoms and signs of the disease it is best to rely on typical descriptions, such as Soper's[17] observations on soldiers in American army camps during the pandemic of 1918-1919: "The leading symptoms are: severe headache; chills or chilliness; pains in the back and legs; temperature sometimes as high as 104 F.; great prostration and drowsiness. Occasionally there are nervous symptoms; sometimes, but not always, the eyes and the air passages of the nose and throat are affected; there may be gastro-intestinal disturbances. The onset is sudden."

During the epidemic which is under consideration in this report the clinical picture of our selected patients was as follows: The onset of the disease was generally gradual, although in certain instances it was extremely rapid, occurring within a few minutes. Chills or attacks of chillness were frequent. Malaise of varying degree was always present. Prostration varied, at times being slight and at others amounting to lethargy. Pain in the back and legs was a constant feature, and at times the pain was generalized throughout the muscles. Photophobia and lacrimation were frequent. Some of the patients complained of sore throat, others had no upper respiratory symptoms. The temperature rose as high as 104 F., and in general the pulse was relatively slow for the degree of fever. The physical examinations were essentially normal. A few individuals showed slight hyperemia and injection of the rhinopharynx, and occasionally a few râles could be heard at the lung bases. These, however, cleared with great rapidity. The urines were normal. The white blood cell counts ranged from 2,800 white blood cells to 6,800 white blood cells, with the leukopenia persisting or even increasing after defervescence. In all but one of the patients under observation, convalescence was marked by asthenia and depression out of proportion

16. Long, P. H.; Doull, J. A.; Bourn, J. M., and McComb, E.: The Etiology of Acute Upper Respiratory Infection (Common Cold), J. Exper. Med. **53**: 447-470 (April) 1931.

17. Soper, G. A.: What is Influenza? Boston M. & S. J. **18**: 635-641 (Nov. 27) 1918.

to the intensity of the initial disease, and frequently from two to three weeks elapsed before normal strength returned.

BACTERIOLOGIC FLORA IN THE RHINOPHARYNGES OF HUMAN BEINGS AND CHIMPANZEES DURING THE EPIDEMIC PERIOD

The studies of the bacterial flora in the rhinopharynx of human beings and chimpanzees during the epidemic period reveal several interesting facts, as may be observed in the accompanying table. The absence of the hemolytic streptococcus type beta and *H. influenzae* in the rhinopharynges of the individuals ill with influenza and their low incidence in normal persons is of interest since one would expect to find at this period of the year 9.9 per cent of normal persons carrying the hemolytic streptococcus type beta, and 32.8 per cent carrying *H. influenzae* in their throats.[18] Practically all the pneumococci belonged to the type IV group.

There was no difference in the rhinopharyngeal flora of the apes before or after inoculation and in general our observations confirm those of Dochez[15] that a similarity exists between the rhinopharyngeal flora in man and in chimpanzees. It is interesting to note that *H. influenzae* was not found in the apes. Gram-negative, filter-passing anaerobic organisms were isolated from cultures of the rhinopharyngeal filtrates in 61 per cent of the influenzal filtrates and in 17 per cent of the filtrates from normal persons. No qualitative difference in the anaerobic organisms from normal persons or from influenzal sources was noted. The organisms isolated during this study were those which constitute a part of the normal anaerobic bacterial flora of the rhinopharynx. *Bacterium pneumosintes* was not isolated.

TRANSMISSION EXPERIMENTS

During the epidemic period it was possible to utilize three of the four apes which had been in isolation since the middle of November, 1930. The inoculum employed was a Berkefeld W filtrate of the rhinopharyngeal washings from an individual ill with early uncomplicated influenza. In each instance the inoculum proved to be free from both aerobic and anaerobic organisms after prolonged cultivation in appropriate mediums. The apes were inoculated by the injection of a small amount of the filtrate into each nostril and into the pharynx, following which each nostril and the posterior pharyngeal wall were gently rubbed with a sterile cotton swab soaked in the filtrate. The protocols of the transmission experiments are recorded in charts 2, 3 and 4.

The initial total leukocyte counts were elevated in apes 1 and 3. This can be ascribed to the fright engendered in the animals during the first few leukocyte counts. It has been our experience that with any given animal the initial counts are always elevated unless the animal is tame and easily handled. However, as will be noted in the chart of ape 3, a base line was established before any symptoms developed. There was no constant change in the differential white blood cell count, either before or after inoculation.

One, three and two inoculations were made respectively before the animals developed symptoms and signs of the experimental disease. The inoculations were spaced at such intervals as to preclude prolonged incubation periods if our knowledge of the incubation period in human influenza is correct, and it would seem from our observations that the incubation period in apes is similar to that in the human disease. We can offer no logical explanation for the failure of the three unsuccessful inoculations. Our only index of symptoms in the experimental disease was the prostration evidenced by the affected apes. We realize that an evaluation of this symptom is difficult, but by using ape 1 as a standard we have endeavored to chart the duration and intensity of the prostration in the other animals. During the incubation period and while the febrile attack was in progress we could not detect any evidence of focal rhinopharyngeal involvement in any of the experimental animals, thus eliminating the possibility that they were suffering from mild "common colds."

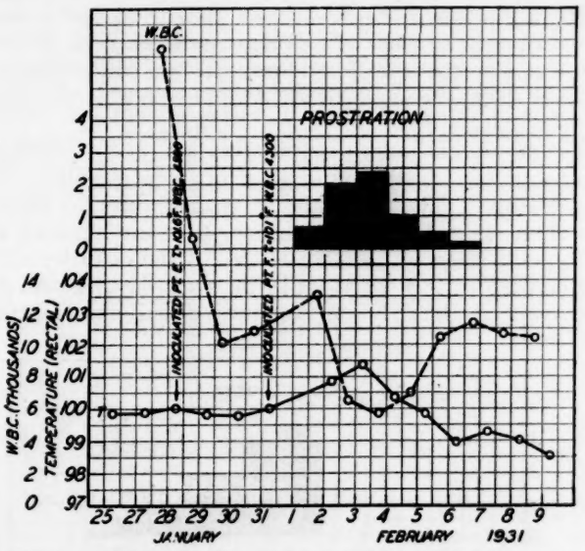

Chart 4.—Clinical course of the experimental infection in ape 3.

Comparison of Percentage Incidence of Aerobic Bacteria in the Rhinopharynx of Influenza Patients, Normal Human Subjects and Chimpanzees from Jan. 13 to Feb. 20, 1931.

	Number of Cultures	Streptococcus				H. Influenzae	Pneumococcus	Friedländer's B.	Staphylococcus: Aureus Hemolytic	Staphylococcus: Aureus Non-Hemolytic	Staphylococcus: Albus Hemolytic	Staphylococcus: Albus Non-Hemolytic	Diphtheroids	Gram-Negative Cocci	Streptobacillus	B. Coli
		α	α′	β	γ											
Human subjects																
Influenza	21	93.8	4.7	0	95.1	0	19.0	19.0	29.6	23.7	33.3	42.8	88.8	52.3	0	0
Normal	81	90.1	13.5	3.7	93.8	7.4	20.9	7.4	13.5	61.7	23.4	65.4	64.1	83.2	2.4	4.9
Chimpanzees	61	91.8	13.1	16.3	85.2	0	13.1	29.5	16.3	67.2	11.4	65.5	75.4	75.4	6.4	16.3

A criticism frequently made of investigations concerning the etiology of influenza is that they are embarked on during an epidemic period and that, no matter how rigid the isolation of the experimental subjects, accidental infection may account for the signs observed subsequent to inoculation. With this in

18. Bourn, J. M.: Personal communication to the authors.

mind, we attempted to preserve influenzal material until it could be utilized in a period when influenza was not prevalent.

The method of preservation was suggested by Dr. T. M. Rivers and is described by Sawyer, Lloyd and Kitchen.[19] Rhinopharyngeal washings were obtained from a patient early in the course of typical influenza. Aerobic cultures of the washings contained alpha, alpha prime and gamma streptococci, gram negative cocci and staphylococci. Anaerobic cultures were negative. The unfiltered washings were frozen and dried and were kept in the icebox for 123 days or until May 19, 1931. On that day the desiccated material was dissolved in 6 cc. of yeast infusion broth and was inoculated into the rhinopharynx of ape 4.

Twenty-seven hours after inoculation, ape 4 showed evidences of prostration and a distinct elevation in temperature. The elevation in temperature persisted for three days. The total leukocyte count reached a leukopenic stage on the second day of the disorder and did not return to normal until the sixth day. Prostration was moderately severe throughout the febrile

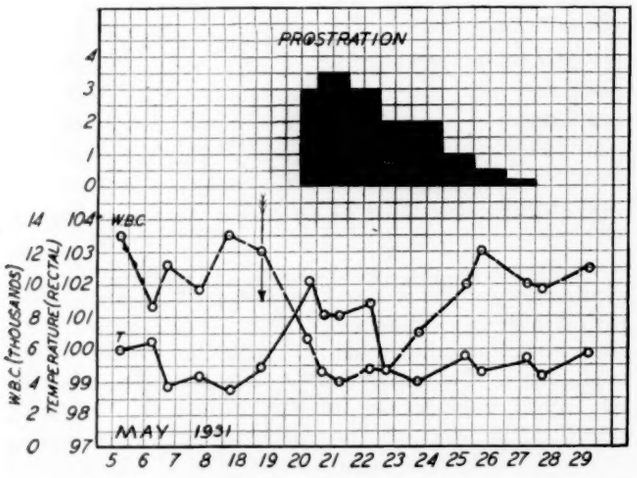

Chart 5.—Clinical course of the experimental infection in ape 4, inoculated with dried influenzal material. The arrow indicates the time at which the ape was inoculated with the desiccated material.

period. The aerobic flora in the rhinopharynx of this ape did not change during the disorder. With the return of the temperature to normal, convalescence was rapid.

COMMENT

An epidemic of acute respiratory disease was present in Baltimore during the months of January and February, 1931. The clinical nature of the disease corresponded to that of uncomplicated influenza as described by numerous observers during the pandemic of 1918-1919. The attack rate of the present epidemic corresponded to the attack rate of the influenza epidemic of 1928-1929, but the mortality from influenza and pneumonia was lower than in 1928-1929. This may be explained by the fact that during the epidemic under consideration the low incidence in the rhinopharynx of certain potentially pathogenic bacteria such as *H. influenzae* and hemolytic streptococcus type beta was a striking feature. While the incidence of *D. pneumoniae* was relatively high, most of the isolated strains fell into group type IV. These observations are to be contrasted with the generally reported high incidence of these organisms during the pandemic of 1918-1919. Studies designed to investigate the anaerobic filter-passing flora of the rhinopharynx show that, aside from a higher incidence of infestation, no difference could be distinguished in the basic flora of individuals ill with influenza and of normal subjects. *Bacterium pneumosintes* was not isolated.

The apparent susceptibility of the chimpanzee to human influenza and the fact that four animals were available led us to use apes as the test subjects. Three animals that received intranasal and intrapharyngeal inoculations with bacteria-free filtrates of the rhinopharyngeal washings from individuals ill with early uncomplicated influenza developed febrile disorders within from thirty-six to forty-eight hours after inoculation. These disorders were characterized by fever, moderate to marked prostration, and a leukopenia. The intensity and duration of the prostration seemed to be out of proportion to the febrile reaction. None of the animals developed signs of focal respiratory involvement, and the basic aerobic bacterial flora of the rhinopharynx did not change during the disorder. After a period of one month all three animals were reinoculated with filtered influenzal material without producing signs or symptoms.

A fourth ape was inoculated in May with influenzal material which had been preserved in the icebox for 123 days. A typical infection characterized by fever, leukopenia and prostration followed the inoculation, after an incubation period of twenty-seven hours. This observation permits the hope that in future epidemics infectious material may be preserved for study during periods when influenza is not prevalent.

Recently Dr. A. R. Dochez[20] communicated to us the results of his observations on the experimental transmissions of influenza to chimpanzees. He states: "In all we inoculated eight chimpanzees with filtered washings from typical cases of so-called influenza. None of these animals had any symptoms whatever. We did not regard the experiment as of great significance, however, in view of the fact that all of the animals were in the stage of convalescence from common colds." In the same communication he describes two transmission experiments in man which were unsuccessful.

CONCLUSION

Disorders characterized by fever, prostration and a leukopenia were transmitted to three chimpanzees by intranasal inoculation with bacteria-free filtrates of rhinopharyngeal washings obtained from individuals ill with human influenza. A similar condition has been produced in an ape during a nonepidemic period by means of an intranasal inoculation with unfiltered influenzal material which had been preserved in the icebox for 123 days. The difficulty of interpreting with complete satisfaction the observations made on the apes is obvious, and we therefore present the observed facts with the knowledge that they conform with those previously reported in man by other investigators.

ABSTRACT OF DISCUSSION

DR. FRANCIS G. BLAKE, New Haven, Conn.: The experiments of Dr. Long and his associates serve to emphasize the importance of defining what influenza is, for at present there is no general agreement as to exactly what the clinical picture of influenza is, as to exactly how much of the disease is due to secondary infection. The authors apparently minimize considerably the occurrence of respiratory symptoms as being an

19. Sawyer, W. A.; Lloyd, W. D. M., and Kitchen, S. F.: The Preservation of Yellow Fever Virus, J. Exper. Med. **50**: 1-13 (July) 1929.

20. Dochez, A. R.: Personal communication to the authors, March 17, 1931.

essential part of influenza. At least there was no evidence of inflammation of the respiratory tract in their successfully inoculated animals, and, except in a few cases, they did not observe significant respiratory symptoms in the patients during this particular epidemic. It is quite true that there is the widest variation in descriptions of the clinical picture of uncomplicated influenza with respect to the prevalence of respiratory symptoms; that is, of rhinitis, pharyngitis, laryngitis or tracheitis. Soper, for example, in describing the disease, minimizes respiratory symptoms, emphasizing the symptoms of prostration, fever and general pains. An equally competent observer, Lichty, has said that every effort was made to recognize the nonrespiratory cases, but I was unable to find a single case that did not present definite respiratory symptoms in addition to other symptoms, early or late. Consequently, it seems wisest to maintain a conservative and perhaps traditional point of view as to whether or not respiratory symptoms are part of the actual picture of the uncomplicated disease.

DR. A. R. DOCHEZ, New York: It is interesting to contrast the picture which Dr. Long and his associates have presented following inoculation of chimpanzees with bacteria-free filtrates from an individual suffering from influenza with that seen in these animals when infected with what corresponds to the common cold in human individuals. The picture is different in that with the common cold in chimpanzees there are always marked respiratory symptoms. An infection of the type of the common cold begins with stuffiness of the nose and the rapid appearance of a mucous discharge. The throat may be red and the mucous membrane swollen. Occasionally there are complications, usually infection of the paranasal sinuses. The signs of prostration and fever are never pronounced. The usual duration of the infection is from a week to ten days. The absence of constitutional symptoms is conspicuous. Prostration is never obvious; the temperature does not rise above 100.8 F. At the most there may be some loss of appetite and some lassitude. On one occasion I observed what was probably a spontaneous outbreak of influenza in our colony of chimpanzees. This occurred during the influenza epidemic in New York in 1928. In this instance the picture was quite different from that described. Prostration was marked, the animals were flat on their sides for two or three days; fever was high, 103 F., and lasted from eight to ten days. Different animals, of course, presented different clinical pictures and those with the most pronounced symptoms had bronchial pneumonia. At this time these animals, however, presented marked respiratory symptoms. Bacteriologic studies of two of the animals showed that they carried during the influenza infection both the influenza bacillus and the pneumococcus. Perhaps the pronounced respiratory symptoms were referable to secondary infections with these organisms. I should like to ask the authors whether they followed the bacteriology of the upper respiratory tract of their animals during the course of the infection. Chimpanzees infected with the virus of the common cold show interesting changes. Chimpanzees harbor a flora in the upper respiratory tract which is comparable to the human flora. All the human potential pathogens are present. These organisms may be inconspicuous during normal periods, but when the animals are infected with the virus of the common cold these pathogens at once become active and appear in great numbers and over a wide area of the upper respiratory tract. The work reported by Dr. Long and his associates is extremely suggestive and valuable. Before closing I should like to say that I have inoculated chimpanzees with bacteria-free filtrates from patients with influenza which seemed fairly characteristic of this winter's outbreak. None of these animals contracted the infection. It may be, however, that they were not in a susceptible phase at the time I inoculated them since all of them were recovering or had recently recovered from acute infection of the upper respiratory tract of the type of the common cold. These observations bring up for consideration an interesting problem concerning the nature of the virus of influenza, whether this organism is a more virulent form of the virus of the common cold or an independent virus. Future studies should now be able to decide this point.

DR. PERRIN H. LONG, Baltimore: I think that Dr. Blake sounded the keynote of experimental work in influenza when he said that one must adopt a very conservative attitude because it is difficult to say that the disease produced in an animal is the same that one sees in human beings. Another important point made by Dr. Blake is the variation in the clinical picture of influenza. We felt that we were dealing with influenza as the clinical picture presented by our patients was similar to the descriptions of the early uncomplicated disease, but it certainly did not resemble certain descriptions of the grave pandemic influenza. In regard to Dr. Dochez's question, cultures of the rhinopharynx of these animals were taken daily, both before and after the inoculation. We could not determine any differences in the bacterial flora. We found, as he has already pointed out, that the flora in our chimpanzees parallels that in human beings. As shown in the second chart, this is true in the case of our animals. Dr. Dochez has told of his unsuccessful attempts to inoculate chimpanzees with influenza material when the animals were convalescing from common colds. We have attempted to produce common colds in the first three animals by means of heavy intranasal inoculations with filtered and unfiltered cold material. To date, these attempts have been unsuccessful. We cannot interpret these negative results but consider them interesting.

PHYSICAL MEASUREMENTS AND PHYSIOLOGIC PROCESSES IN YOUNG CHILDREN

SOME CORRELATIONS *

WILLIAM PALMER LUCAS, M.D.
AND
HELEN BRENTON PRYOR, M.D.
SAN FRANCISCO

For centuries men have sought a relationship between body form and function. In recent years investigators have been inclined to disregard the individual patient and focus attention on the micro-organisms responsible for his disease. But many individual differences in susceptibility remain unexplained. It is now thought that perhaps the solution of some of the problems in immunity lies in the recognition of certain anatomic and physiologic types or constitutions.

Variations in anatomic and physiologic characteristics compatible with health must be defined to establish zones of normality. Most standards of health recognize only one zone as normal. In grading the physical fitness of the children of America, one certain weight for height and age is considered normal.

Nutrition properly holds first place in judging the physical status of children. Comprehensive investigations in this field have been carried on by physicians, school nurses, dietitians and health and welfare agencies. A recent report estimates that six million of our forty-five million children are undernourished when judged by the relation of weight to age and height. This report cannot be accepted unless one accepts also one type of body build as normal for the whole nation.

At present the health records sent home with report cards from the public schools inform millions of parents in America that their children are under or over *normal* weight. For the most part, those classed overweight cause much less concern than those classed underweight. The parents of the latter children worry excessively while they impose a tremendous strain on

* From the department of pediatrics, University of California Medical School.
* This study was made possible in part by a research grant given by Mr. Paige Monteagle.
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* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

the digestive systems of the slender children by insisting on high calory, high fat food in the hope of their children attaining normal weight.

The inadequacy of the height, weight, age tables to measure the nutritional status of children has been pointed out by many observers. The wide use of these tables in schools and by pediatricians is perhaps responsible for too much significance being attached to deviations from average weight.

Fig. 1.—Jean, aged 8 months: height, 27 inches; weight, 14½ pounds; width-length index, 156.

Dr. Franzen points the way to a better method of judging nutrition when he emphasizes the importance of skeletal dimensions as determining variations in weight.

We agree with him that weight takes into account skeletal dimensions as well as the mass of soft parts and reflects skeletal build rather than soft tissues.

Obviously, girth measurements give an idea of nutritional status since they measure the soft tissue or padding carried by the bony-framework.

A large bony framework not only requires large muscles to operate it but is also able to maintain a much larger amount of soft tissue padding than a small one. Individuals of the same height, age and sex may differ greatly in width of shoulders, chest and hips. Diameter measurements on children illustrate this point. Among ten 3-year-old girls whose height was from 39 to 39½ inches the iliac crests varied from 15 to 17.5 cm. (16.5 per cent). Their weight varied from 29¾ to 47 pounds (56 per cent). Among sixteen 7-year-old boys whose height was from 48 to 48½ inches the iliac crests varied from 18 to 20.2 cm. (12.5 per cent). Their weight varied from 42½ to 67½ pounds (59 per cent). The differences in body weights in these children are due to differences in width of bony frame, size and weight of bones and muscles and amounts of subcutaneous tissue. Roentgenograms indicate that broad built children have broad heavy bones and narrow built children have slender bones. The fallacy of the height, weight, age table data for predicting normal weight is immediately apparent.

Dr. Franzen points out the necessity of having a concrete measure of that heretofore vague clinical term "nutrition." He shows how widely two or more physicians may vary in their clinical rating of nutrition in the same group of children. Nutritional status and body build are closely related separate entities. We feel that since weight runs parallel with build a simple measure of body build would give at once a method of calculating the amount of weight divergence from height weight averages which should be called normal for different types of bony framework.

In seeking a method to judge skeletal differences we have made sixty-three body measurements on children, following Draper's [1] technic. We have worked out twenty-seven indices from these measurements and have found that several of them give substantially the same information. Our material consists of 1,000 children from the age of 2 weeks to 17 years. There are 500 boys and 500 girls. Table 1 shows the distribution according to age and sex. They are all white, native-born, middle and upper class children taken from private office practice.

TABLE 1.—*Age and Sex Distribution in One Thousand Cases*

Age	Sex		Total
	Male	Female	
0–1	97	94	191
1	84	59	143
2	37	37	74
3	40	29	69
4	38	32	70
5	22	30	52
6	33	32	65
7	26	29	55
8	24	35	59
9	16	23	39
10	18	23	41
11	14	24	38
12	21	20	41
13	16	10	26
14	7	7	14
15–17	7	16	23
Total	500	500	1,000

Indices for calculating body build are nearly as legion as the terminology describing types. For the most part they are very complicated and require many measurements, which would not be practical for the average practitioner to use. Naccarati's [2] index is one of the most complicated. He determined the ratio of length of the arm and length of the leg to volume of the trunk.

Davenport [3] describes a much simpler method. He points out that many regard it as a truism that build is a relation of volume to stature. He has classified build by measuring the relation of weight to stature since weight is more closely related to volume than any other commonly obtained measurement. He classified very slender, slender, medium, fleshy and very fleshy. The weight in pounds divided by stature in inches multiplied by 1,000 gives him indices from 20 to 60. His frequency polygon is the same type of figure that we have obtained by plotting curves of our width-length ratio. He discusses the significance of variations in build and diseases in relation to build, and proves the direct inheritance of tendencies to particular types of body build. He also indicates that there is strong evidence of the mendelian inheritance of body build.

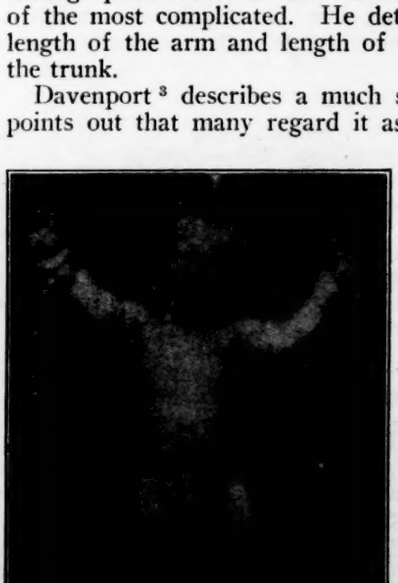

Fig. 2.—Wilfred, aged 8 months: height, 31 inches; weight, 30½ pounds; width-length index, 183.

1. Draper, George: Human Constitution, Philadelphia, W. B. Saunders Company, 1924.

2. Naccarati, S.: The Morphologic Aspect of Intelligence, Arch. Psych., 1921, number 45, pp. 1-44.

3. Davenport, C. B.: Body Build and Its Inheritance, Carnegie Institution of Washington, December, 1923.

We have tried, in the San Francisco study, to simplify classification of body build by merely comparing width to length of body.

A single diameter of the pelvis has been chosen for width, partly because it is easily measured, partly because the crests of the ilium are covered with relatively little subcutaneous tissues in children and partly because it is a constant measurement and not subject to changes with respiration as are the chest measurements. The widest diameter of the iliac crests was measured with calipers pressed firmly to obtain, as nearly as possible, the greatest width of the innominate bone. This measurement was divided by the vertex measurement to get the intercristal diameter in per cent of standing height, thus comparing two linear measurements of length and width to obtain a single index of build. For example, a boy, aged 9 years, is 53 inches (135 cm.) tall. His bi-iliac diameter is 23 cm. Then his width-length index is 23 divided by 135, or 0.170; or a girl, aged 6 years, is 47 inches (119 cm.) tall. Her bi-iliac diameter is 18 cm. Then her width-length index is 18 divided by 119, or 0.155. In dealing with children the factor of growth makes comparison of direct measurements of doubtful value.

This width-length comparison involves two very simple measurements which can be carried out in any office practice. The width-length index obtained gives direct information concerning the type of bony framework possessed by an individual. Therefore it is a measure of the unchangeable inherited characteristic of body build. Davenport has proved the genetic basis of body build. Nutritional status and body build are two separate entities which nevertheless may have a direct relationship to each other. As has been pointed out, a large heavy framework requires larger muscles to move it and is also capable of carrying a larger mass of fat and subcutaneous tissue than a small one. For this reason, large boned children may be classed overweight and small boned children may be classed underweight by height-weight table standards when both may be normal weight for their inherited framework. (The converse is true also.)

The width-length index increases directly with the relative breadth of the child since it expresses the simple relationship of width to length of the body. Broad, stocky children have high indices and slender children have low indices.

Indices vary from 130 to 190 (fig. 5). The width-length index can be used to compare children of all ages since it expresses a relationship of each body to itself. Empirically, it can be said that a low index means a slender child with small bones and a high index means a broad child with large bones. Examination of figure 6 shows that the central tendency of this index is higher for babies than for children because of the shortness of their bodies, but their individual variation is nearly as great before 1 year of age as afterward. We have attempted to get a measure of the amount of variation from the height, weight, age table averages that should be allowed for body build before diagnosing overweight or underweight. If a child's width-length index is small, he should weigh less than the height-weight table indicates, and if his index is large he should weigh more than the table indicates.

The use of the height-weight-age tables is quite indispensable and we seek only a new interpretation of them. The tables now so widely used are based on measurements of many thousands of children and possess valuable information concerning the central tendency of the mass of measurements from all sources on these thousands of children.

It has been shown many times that the human race cannot be sharply and neatly classified into the various types that have been so artistically described by the many writers on the subject. The pyknic and asthenic, the linear and lateral, exist as pure types only rarely. All classes of body build grade imperceptibly into one another and yet it is necessary to recognize and designate certain characteristics most often found together. The mass of the population exhibits bewildering claims to certain features of all classifications that have been devised. Thus one may see an individual whose extremities are of the linear type and whose trunk is of the lateral type or one whose organs seem to be of the lateral type and whose trunk is of the linear type. In the animal world one sees the Boston bulldog with achondroplastic head and normal legs, the Scottish terrier with achondroplastic legs and normal

Fig. 3.—Patsy, aged 9 years: height, 52 inches; weight, 57 pounds; width-length index, 148.

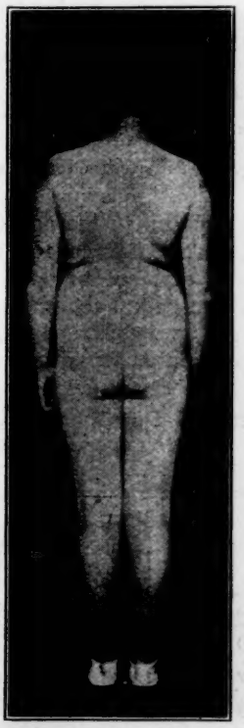

Fig. 4.—Margery, aged 9 years: height, 51 inches; weight, 71 pounds; width-length index, 163.

head, and many other mixed types discussed by Dr. Stockard.[4] Perhaps the human race is biologically conglomerate. Who, then, shall classify certain narrow physical or physiologic traits as normal?

To get at the relationship of the nutritional status assigned by the height-weight-age tables and the width-length ratio of the body we compared the percentage deviation of the width-length index from average with the percentage deviation of the individual's weight from the height-weight-age "normal" in each case. For each child the weight was calculated a certain per cent above or below the ideal weight in the height-weight-table and his width-length index was calculated a certain per cent above or below the average width-length index for his age. These percentage variations were then compared for 1,000 children by calculating the standard

4. Stockard, C. R.: The Physical Basis of Personality, New York, W. W. Norton & Co., 1931.

deviations. Standard deviations and correlation coefficients were calculated according to the Pearson correlation formulas:

$$\sigma_x = \sqrt{\frac{\Sigma x^2}{N}} \qquad \sigma_y = \sqrt{\frac{\Sigma y^2}{N}}$$

$$r = \frac{\Sigma xy}{\sqrt{(\Sigma x^2)(\Sigma y^2)}}$$

Standard deviations were found for various age levels, the two sexes done separately. Average indices and standard deviations are nearly identical for boys and girls up to the age of 11 years and so are shown together. Indexes for ages 5 to 10 years are very similar and so standard deviations are calculated for that age group together. From the ages of 11 to 17 the girls vary more than the boys and so the deviations are calculated separately (table 2).

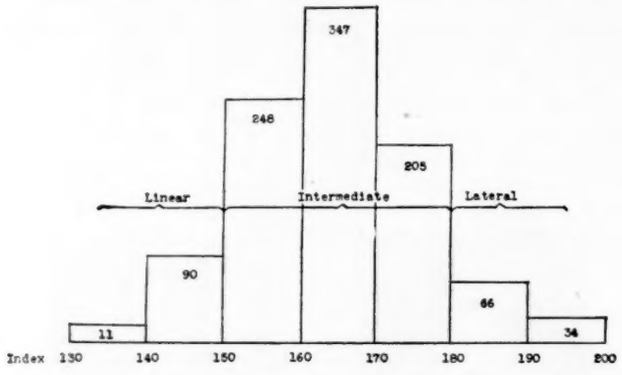

Fig. 5.—Frequency distribution of 1,000 cases, width-length index.

TABLE 2.—*Distribution of Standard Deviations Expressed as Percentage Variations for Width-Length Index and Height-Weight Table Normal Weight*

Age	N	Mean Index	σ_x	σ_y	r	PEσ_x	PEσ_y	PE r
0–1	191	175.2	6.76	11.63	0.46	0.24	0.41	0.039
1–2	143	168.4	5.97	10.61	0.27	0.24	0.42	0.0525
2–3	74	165.7	4.92	9.25	0.39	0.27	0.51	0.0666
3–4	69	163.4	5.43	10.16	0.28	0.31	0.51	0.0747
4–5	70	162.6	6.11	12.70	0.28	0.35	0.73	0.0744
5–10	311	157.4	5.24	11.86	0.45	0.14	0.32	0.0306
Male 11–17	65	155.1	6.48	11.48	0.31	0.38	0.66	0.0753
Female 11–17	77	164.9	7.40	16.32	0.48	0.40	0.89	0.0591

N, Number of children.
σ_x, Standard deviation from width-length index mean for age in per cent.
σ_y, Standard deviation from height-weight age table; normal weight in per cent.
PE, Probable error.
r, Correlation coefficient.
Mean Index, width-length index mean for age.

When x equals deviation from per cent mean of width-length index, and y equals deviation from mean of body weight based on table, σx is consistently about one half of the σy for all ages and both sexes.

This indicates that x is twice as good as y as a measure of this series of children.

The correlation coefficient is less than 0.50 in every case and averages 0.37, which indicates a slight positive relationship.

For age 0-1 $\sigma x = 6.76$; $\sigma y = 11.63$. Then approximately two thirds of the 191 children at that age fall within 6.76 per cent of mean x and two thirds of the 191 children at that age fall within 11.63 per cent of mean y; or, to state it differently, 4 points on either side of x mean will include 50 per cent of the 191 children while 4 points on either side of y mean will include only 30 per cent of the 191 children.

For age 5-10, $\sigma x = 5.24$; $\sigma y = 11.86$. Then approximately two thirds of the 311 children fall within 5.24 per cent of x mean and two thirds of the 311 children fall within 11.86 per cent of y mean; and, for ages 5-10, 3 points on either side of x mean will include 50 per cent of the 311 children while 3 points on either side of y mean will include only 20 per cent of the 311 children. To measure the probability that differences as extreme as those observed could arise by chance, the critical ratio was calculated by taking the standard deviation of these two standard deviations for x and y according to the formula:

$$C.R. = \frac{\sigma_x - \sigma_y}{\sqrt{\sigma^2_{\sigma x} + \sigma^2_{\sigma y} - \left(2r^2_{xy}\,\sigma_{\sigma x}\,\sigma_{\sigma y}\right)}}$$

The indication is that the observed differences between σx and σy could arise by chance once in approximately a quarter of a million cases at most of the age levels.

To summarize the relationship of width to weight in this series: the standard deviations indicate that weight varies from the height-weight table ideal twice as much as the width-length index varies from the average at each age when both are measured in per cent. For example, if a boy, aged 7 years, has an index 150 (4.5 per cent less than the average 7 year old index 157.4) his weight could be ($2 \times 4\frac{1}{2}$) 9 per cent less than the height-weight table ideal and still be normal for his frame. If he is 48 inches tall his normal weight, according to the height-weight table, is 53 pounds (24 Kg.), but since his hips are so slender he could weigh 9 per cent less, or 48 3/10 pounds (21.9 Kg.) and be normal for his frame. Or if a girl, aged 4 years, has an index of 176 (8 per cent larger than the average 4 year old index 162.6) her weight could be 16 per cent greater than the height-weight table ideal and still be normal for her frame. If she is 40 inches (101.8 cm.) tall her normal weight, according to the height-weight table, is 36 pounds (16.3 Kg.); but since her hips are 8 per cent wider than the average for her age she could weigh 16 per cent more than 36, or 41 7/10, pounds and be normal for her frame.

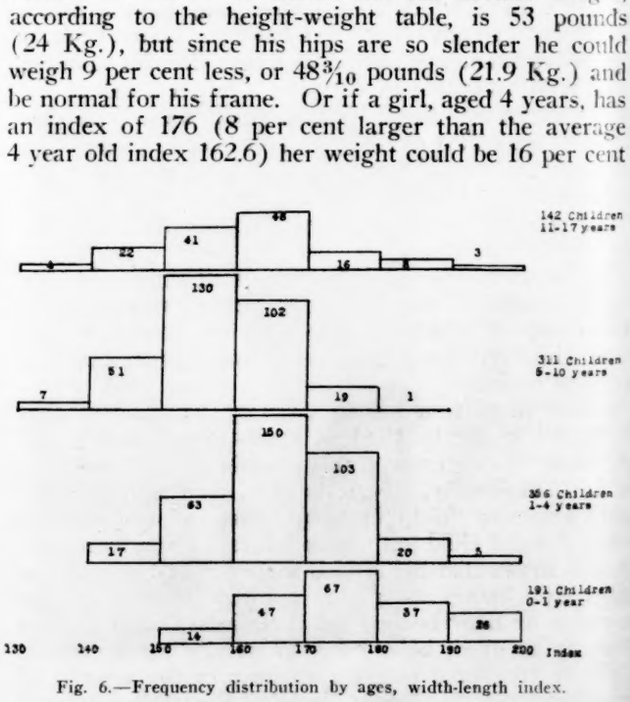
142 Children 11-17 years
311 Children 5-10 years
366 Children 1-4 years
191 Children 0-1 year
130 140 150 160 170 180 190 200 Index

Fig. 6.—Frequency distribution by ages, width-length index.

Body build or type has been assigned significant rôles in medicine since the time of the ancients, when habitus

was considered by Hippocrates in the etiology of disease. Certain psychologic aspects of man were thought to parallel closely certain anatomic aspects from earliest time. Thus, Shakespeare put into the mouth of Caesar the prevailing opinion of the linear type:

> Caesar—Let me have men about me that are fat;
> Sleek-headed men, and such as sleep o' nights:
> Yond Cassius has a lean and hungry look;
> He thinks too much: Such men are dangerous.
>
> Anthony—Fear him not, Caesar; he's not dangerous;
> He is a noble Roman, and well given.
>
> Caesar—Would he were fatter!

Very little work has been done on the problem of the relationship of anatomic types and physiologic functions, although Dr. Maclaren Thompson [5] has given an excellent description of certain functional differences in discussing types of individuals. He quotes from Bean,[6] Montessori and others. To contrast the two extreme human types, the following outline, largely from Thompson's lecture material, attempts to classify what is known of linear and lateral types in the four panels suggested by Draper:[7]

ANATOMIC PANEL

Linear Type	*Lateral Type*
Narrow head	Round head
Hatchet face	Round or pentagonal face
Long narrow straight nose	Pug or thick nose
Interpupillary distance short—eyes close together	Interpupillary distance wide; eyes far apart
Small (often receding) chin	Prominent chin
Teeth crowded and ill set	Teeth not crowded; smoothly set
Abundant hair on head	Moderate hair on head
Reduced hair on body	Moderate hair on body
Neck long and of small circumference	Neck short and thick
Long limbs and trunk	Limbs and trunk short and thick
Shoulders high and angular, prominent scapula, round shouldered	Hands and feet often large
Thorax long, narrow and shallow with small circumference and outlet	Thorax short vertically compared with abdomen, but broad and deep, ample circumference and wide outlet
Ribs set obliquely, subcostal angle narrow, chest capacity and expansion poor	Ribs approach horizontal, subcostal angle widely open, thoracic capacity large, expansion good
Heart is small; its long axis approaches the vertical; it is situated rather low down in the thorax and is somewhat cramped for room	Heart is large, its long axis approaches the transverse; it is situated high in the thorax; plenty of space to function energetically
Arteries and veins are thin and elastic and become sclerosed only in old age	Arteries and veins thick and inelastic and liable to sclerosis at an early age
Abdomen is short vertically; pelvis is wide	Abdomen is well developed, is longer vertically than the thorax, often protrudes
Liver is low lying with vertical inclination, keeps mainly to the right	Liver is large, high lying, transverse extends well over to left side
Stomach is low lying, often below the umbilicus, vertical and lying strictly to the left side; J shaped so-called fish hook stomach; the lowest part of the stomach lies some considerable distance below the pylorus so the stomach must empty itself against gravity; complete emptying is often difficult	Stomach lies high; its long axis approaches the transverse so-called cow-horn stomach; the pylorus lies very little higher than the lowest point of the stomach (emptying time not retarded by gravity); pylorus tends to lie to the right of the midline
The small intestine is short	Small intestine is longer than average
The large intestine is long	Large intestine is shorter than average; transverse colon short and straight
Extraperitoneal fat scanty	Extraperitoneal fat prevents undue movements of the abdomen viscera; plenty of fat about kidney
Almost no reserve adipose tissue	Ample reserve of adipose tissue
Poor musculature; slender muscles	Well developed musculature
Slender bones	Broad bones
Body slender and underweight according to the tables	Body short thick set, often stout, overweight according to the tables

PHYSIOLOGIC PANEL

Linear Type	*Lateral Type*
Physiologically far-sighted	Physiologically near-sighted
Left heart average development	Left heart better developed than in linear type
Circulation often poor	Circulation is good
Low blood pressure	High blood pressure
Pale complexion, anemic looking, often sallow or muddy complexion	Therefore ruddy or plethoric countenance
Chest expansion poor and oxygenation of blood is poor with some stagnation of pulmonary circulation; venous circulation tends to stagnate, producing prominent blue veins	Respiratory function is very satisfactory so the blood not only circulates vigorously but is well oxygenated in addition.
Stomach empties with difficulty against gravity	Stomach empties itself readily
Shortness of the small intestine causes poor assimilation since the food passes through more quickly, and the general nutrition suffers; trophic functions are not vigorous	Because the small intestine is long there is preponderance of absorptive portion of the bowel which leads to good assimilation and good nutrition
This type should get a well cooked, highly nutritious diet containing plenty of concentrated food, as meat, eggs and milk	This type of person should be a vegetarian since the diet should be bulky and not overnutritious or concentrated; plethora is caused by overnourishment in this type
Often constipated	Not constipated
Arrive at puberty early	Arrive at puberty late
Males have deep bass or heavy baritone voice	Males have light tenor voices

PSYCHOLOGIC PANEL

Intense, intellectual and self-centered	Socially easy-going
Fond of reforming, dogmatic and fanatical	Tolerant in morals and religion
Often deficient in sense of humor	Well developed sense of humor
Poor executive ability	Good executive ability
Little endurance	Great endurance
Speedy adjustment	Slow adjustment
Increased psychic excitability	Decreased psychic sensitiveness
Nervous temperament	Phlegmatic-torpid temperament
Quick and changeable	Slow and methodical
Introverted	Extraverted
Prone to fixed ideas and ideas of persecution	Predisposed to recurring circular or manic-depressive forms of insanity
Self conscious	Not self conscious

IMMUNOLOGIC PANEL

Liable to get?	
Tabes mesenterica	Heart disease
Cervical lymphadenitis	Chronic nephritis
Enlarged tonsils and adenoids	Arteriosclerosis
Influenza; colds	Aneurysm
Tuberculosis	Apoplexy
Melancholia	Paralysis
Nervousness	Diabetes
Fevers	Bladder trouble
Appendicitis	Hernia
Intestinal trouble	Liver trouble
Gastric ulcer	Gallstones
Anemia	Gallbladder trouble
Rheumatism	Hemorrhoids
Diphtheria	
Scarlet fever	

It seems easier to see a direct relationship between anatomic form and physiologic function than between anatomic form and psychologic patterns. Dr. Paterson [8] has applied the statistical method of direct correlation and thus measured the degree of relationships between mental traits and physical traits as reported by many observers who used methods of group comparison which the author points out can only indicate the existence of a probable relationship.

He concludes with Pearson that intelligence is only negligibly correlated with a wide array of physical traits and physical conditions.

Turning to the physiologic panel, we [9] have been struck with the general similarity of the children whose main complaint is anorexia. In one series of 110 children, already reported, we noted that 82 per cent of them were of the slender or linear type and so would be expected to have the slow-emptying, fish hook type of stomach. We have since observed 74 additional patients whose main complaint is anorexia. For this

5. Thompson, Maclaren: On Anatomical Types and Their Relationship to Disease, Canad. M. A. J. **14**: 1155 (Dec.) 1924.

6. Bean, R. B.: The Two European Types, Am. J. Anat. **31**: 350 (March 15) 1923.

7. Draper, George; Dunn, H. L., and Seegal, D.: Studies in Human Constitution: Facial Form and Disease Correlation, Am. J. M. Sc. **169**: 322 (March) 1925; Human Constitution—Clinical Anthropometry, J. A. M. A. **82**: 431 (Feb 9) 1924.

8. Paterson, D. G.: Physique and Intellect, New York, Century Company, 1930.

9. Lucas, W. P., and Pryor, Helen B.: Factors Involved in Combating the Hunger Strike in Children, Am. J. Dis. Child. **41**: 249 (Feb.) 1931.

whole number the width-length indices vary from 135 to 169 with an average for the whole group of 149, which is low.

We recognize the necessity of feeding children according to their powers of digestion and their individual anatomic needs. These two things are indicated by the body type, which we feel can be measured satisfactorily by calculating the width-length index. If the existence of divergent body types is recognized which in the whole population grade imperceptibly into one another there will be a more labile conception of normal, and it should be easy to classify any given individual in a wide zone, as the standards for normal are different in these different zones. The three weight zones that we recognize start with the central average or intermediate group whose proportions correspond closely to the ideal in the height-weight-age tables. This represents the mass of the population (80 per cent of our series). But instead of considering variations in either directions as pathologic, i. e., underweight or overweight, we recognize a normal zone for the linear type individuals who are underweight according to height-weight-age tables but whose width-length ratio is small, below 150 (10 per cent of our series), and a normal zone for the lateral type individuals who are overweight according to height-weight-age tables but whose width-length ratio is large, above 170 (10 per cent of our series). A lateral type individual might actually be underweight even though he was heavier than the average in the height-weight-age tables and, conversely, a linear individual might actually be overweight even though he was under the average in the height-weight-age table.

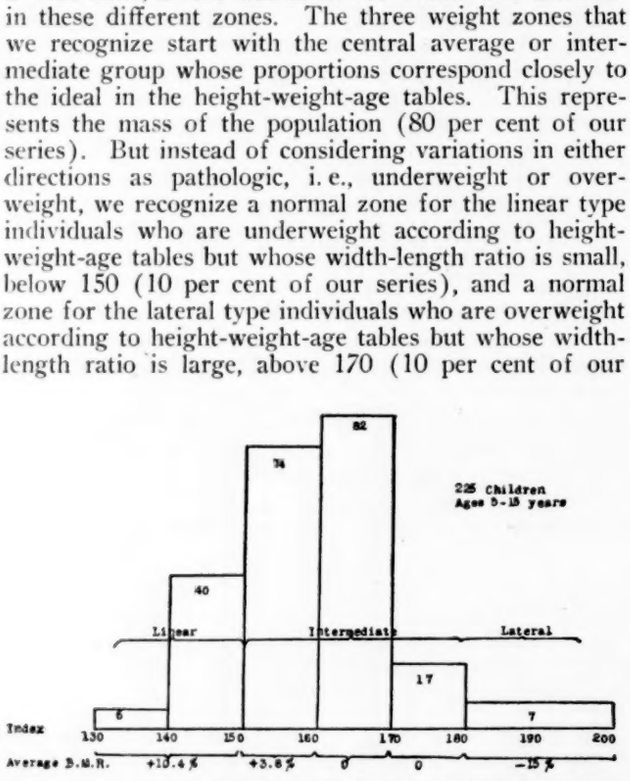

Fig. 7.—Average basal metabolic rates distributed according to width-length indexes of groups.

Correlations between body build and basal metabolic rates on 225 children show in general that linear type children tend to have higher basal metabolic rates than lateral types and that extremely high or extremely low basal rates are usually found in the children whose width-length indices classify them as marked linear or lateral types.

All basal metabolic rates were calculated by the Benedict-Talbot or Harris Benedict standards and at least two consistent readings were taken on each child reported. Metabolisms were checked at three month intervals when possible. Figure 7 indicates the relationships between the basal metabolic rates taken and the body type as measured.

Of 45 children whose width-length indices were between 130 and 150, 9 had minus basal metabolic rates (average for group — 9.4 per cent) and 34 had plus basal metabolic rates (average for group + 16.2 per cent). 2 were zero. Mean basal metabolic rate for index was + 10.4 per cent.

74 children had width-length indices between 150 and 160. 29 had minus basal metabolic rates (average for group — 12.1 per cent). 43 had plus basal metabolic rates (average for group + 14.8 per cent). 2 were zero. Mean basal metabolic rate for index was + 3.8 per cent.

82 children had width-length indices between 160 and 170. 42 had minus basal metabolic rates (average for group —12.2 per cent). 34 had plus basal metabolic rates (average for group + 14.1 per cent). 6 were zero. Mean basal metabolic rate for index was zero.

17 children had width-length indices between 170 and 180. 6 had minus basal metabolic rates (average for group — 9.9 per cent). 7 had plus basal metabolic rates (average for group + 9.3 per cent). 4 were zero. Mean basal metabolic rate for index was zero.

7 children had width-length indices between 180 and 200. All 7 had minus basal metabolic rates (average for group — 15 per cent).

A small beginning has been made in the study of body build as related to allergic conditions. A preliminary survey confirms the impressions that asthma occurs largely in linear type children. Of fifty allergic children measured, those whose complaints were asthma and bronchitis had an average width-length index of 152. Those whose complaints were first eczema and then asthma had an average width-length index of 165 and those whose complaints were eczema and hives had an average width-length index of 178. The last group were all babies, so the high index is only 3 points higher than average for the first year. No conclusions can be drawn from so small a number; a further study is in progress.

Dr. Davenport, who has been studying growth problems, sums up our general observations, as well as his own, when he says: "The point I have been making is that just the average curves of growth derived from the study of masses are of little value for judging the normality of the growth of the individual since the normal individuals grow in such different fashion."

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ABSTRACT OF DISCUSSION

DR. ISAAC A. ABT, Chicago: Almost any measurements that one may make on the body surface of the child will represent growth and will serve as a variable to indicate increase in size, growth and general development. So far as the height and weight measurements are concerned, a general acceptance of height and weight measurements is not sufficient because one is dealing with different types of children. The authors mentioned two, the linear type and the broad type, but many authors classify a larger group. It is apparent that it is impossible or difficult to discuss this problem categorically, and it must be tested out in the line of more extended clinical experience. It seems to me that this paper contains a great many suggestive facts which should be applied by clinicians on a large number of children. But perhaps I may be permitted to state some general principles about measurements. They should fulfil the following requirements: First, the data should be uniform for the entire period of investigation; second, the children examined should belong to the same racial, social and morphologic groups. By morphologic I mean variations in type of build or architecture. The material should be so large that actual or accidental fluctuations are negligible. Average values for the group measurements are in themselves inadequate. The extent of variation and the standard of deviation must also be given. Very important is the correct statement of age. Quite often children of 9½ years are considered as 10 years of age in the tables, or a child is estimated to be 10½ years of age when he is 10¼ or 10¾ years. In some investigations children have been weighed with their clothes on or measured with their shoes on, which, of course, is not accurate. Then there are a number of other conditions which I shall briefly enumerate. Hereditary constitutional characteristics influence growth. Other factors are the birth weight, which depends

on the age of the mother (the children of older mothers weigh less than children of younger mothers), primary congenital disturbances of growth, hyperplastic constitution, congenital overweight, congenital dwarfism (of which there are several kinds), the correlation between the growth and the internal secretory organs, growth of children with subnormal birth weights, debilitated children; also, twins (which may behave like premature children). Then there should be considered the effect of environment on growth; that is to say, quantity and quality of food, social status, effect of resting, diseases, vacations, sports and exercise.

DR. OLIVER W. HILL, Knoxville, Tenn.: For a number of years I have observed children that go to the public schools. The nurse tells them they are underweight, causing much distress, as this is in some instances counted against their grade rating. They may be of a family of small stature and this is a family characteristic. As Dr. Abt mentioned, it may be a racial characteristic; still they insist on these children taking too much milk and too much food for their digestive ability, attempting to make them conform to an arbitrary standard. In girls, especially, I have noticed this particular phenomenon. Girls seem to lend themselves more to the suggestions in order to please the nurse and the teacher. They take this food and become overweight; then at 13 or 15 they decide they want to slim down and get the boyish figure; they begin to diet and in many instances do themselves irreparable injury. The same thing applies to infants. A woman who weighs 100 pounds wants her baby to be as large as that of her neighbor, who weighs 140 pounds. Of course, the physical ability of the children to gain weight is not the same. The child is done a definite injury many times. If one had some way to correct the standards that the nurses use in the schools and convey this information to them, I think one could do away with a lot of anxiety on the part of the parents as well as physical injury to the children under their supervision.

THE FILAMENT-NONFILAMENT COUNT

ITS DIAGNOSTIC AND PROGNOSTIC VALUE *

W. V. MULLIN, M.D.
AND
G. C. LARGE, M.D.
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Since the time of Ehrlich's epoch-making discovery of a satisfactory method of staining the white blood cells, definite and steady advances have been made in the methods and interpretations of total white blood counts and differential smears. As is well known, the white blood cells were first divided into three types—granulocytes, lymphocytes and large mononuclears. The granulocytes have been further divided into polymorphonuclear basophils, polymorphonuclear eosinophils and polymorphonuclear neutrophils. It is with the latter group that this paper is concerned chiefly.

For many years, differential counts and total counts of the white blood cells have been used as an aid in securing the clinical picture of a disease, the total number of cells and the distribution of types being used mainly as an index of the type of disease present, and the degree of its severity.

In many instances, however, the question in the physician's or surgeon's mind is how to explain certain incompatibilities which arise between the total leukocyte count, the differential smear, and the clinical observations in the case in question.

A distinct advance was made in 1904 and 1905 by Arneth,[1] working at the Leube clinic, when he studied the changes in the nuclear structure of the neutrophils during acute infections. He made a primary division of the polymorphonuclear neutrophils into five classes, each class being recognized by the number of segmentations to the nuclei, the fifth class including those containing five or more distinct segments. He further subdivided these and also the lymphocytes and monocytes until he had in all eighty-one subdivisions.

This was a rather complicated picture, to say the least, as far as being of practical value in making a differential count, but it gave a lead as to the changes occurring in these cells in infections, and a possible explanation of these changes.

In his study Arneth observed that normally the predominating type of polymorphonuclears in the blood stream consisted of those which contain two or more segments, from 90 to 95 per cent being of this class.

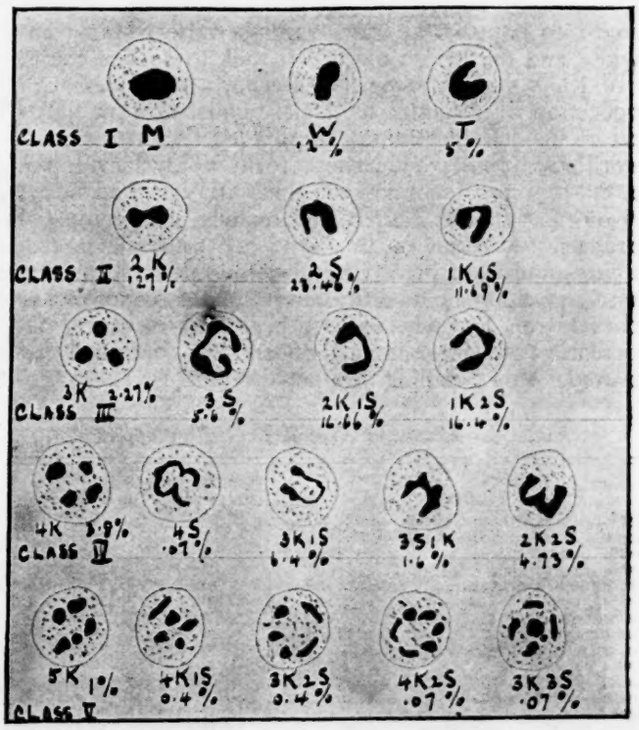

Fig. 1.—Classifications of polymorphonuclear neutrophils by Arneth. From Cooke and Ponder: The Polynuclear Count.

He showed that the class I polymorphonuclear neutrophil containing an unsegmented nucleus is a young or immature cell and that the age of the cell is decided by the extent of the segmentation. Arneth pointed out that in acute infections these immature cells increase in number, while the older cells show a corresponding decrease. This change he termed a "shift to the left," and a return from such a change was termed "a shift to the right." These changes are fairly constant, varying with the severity of the infection, the number of immature forms becoming more numerous as the infection grows worse and lessening in number on recovery and convalescence with reversion to the two to five segmented variety.

This appearance of immature forms in the blood stream is explained by a destruction of the normal balance between leukocytic regeneration and degenera-

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* From the Cleveland Clinic.

* Because of lack of space, this article has been abbreviated here. The complete article appears in the Transactions of the Section and in the authors reprints.

* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Arneth, J.: Die neutrophilen Leukozyten bei Infectionskrankheiten, Deutsche med. Wchnschr. **30**: 54, 92, 1904.

tion, which is constantly going on in the body. The presence of a leukopenia or a leukocytosis is caused by an inhibition or a stimulation, respectively, of the bone marrow by the bacterial toxin. When increased destruction of white cells occurs in infection, an increasing demand is put on the bone marrow, which is unable to cope with the increasing demand for mature cells, and therefore immature cells are poured out.

Although Arneth's observations promoted great interest throughout the scientific world and it was recognized that his procedure was of definite value, it did not

Fig. 2.—Classification of von Schilling, dividing Arneth's class I into three types and placing the remainder of Arneth's classification in class IV: I, myelocyte; II, young form; III, band form; IV, all segmented varieties.

come into popular laboratory use because of its complexity and the length of time it took to do one count.

In 1920, von Schilling,[2] of Berlin, after a thorough application of Arneth's methods, published a modification of his classifications. He divided Arneth's class I into three types, the earliest form a myelocyte, the second a young form and the third and more advanced a band form. His fourth type included all segmented varieties. A count of this type can be made in five minutes and is of great clinical value. It is surprising that von Schilling's modification has not come into more general use, for wherever it has been instituted its popularity has been immediate and its continued use assured. Von Schilling also noted typical toxic changes

TABLE 1.—*Maximum Nonfilament Percentages*

Disease	Nonfilament Percentage	Total Leukocyte Count
Hemolytic streptococcic septicemia	60	4,200*
Hemolytic streptococcic septicemia	72	32,000*
Acute appendicitis	21	15,000
Acute appendicitis	42	23,000
Acute appendicitis	20	11,600
Acute appendicitis	30	16,000
General peritonitis	64	3,000*
Hemolytic streptococcic sore throat	46	9,250
Lobar pneumonia	50	33,200*
Acute pansinusitis	42	9,800
Acute sinusitis (frontal)	22	10,600
Acute sinusitis (maxillary)	15	17,800
Acute sinusitis (frontal and maxillary)	17	9,400
Acute sinusitis (maxillary)	31	12,050
Acute sinusitis (maxillary)	27	11,600
Acute mastoiditis	72	36,200*
Acute mastoiditis	39	20,200
Acute mastoiditis	51	19,800
Acute mastoiditis	36	11,900
Acute mastoiditis	26	16,400
Acute mastoiditis	30	10,800
Acute mastoiditis	62	15,600*
Multiple furuncles	26	16,200
Septic hip	18	14,600
Ruptured gastric ulcer	68	12,200*
Acute cervical adenitis	18	14,300
Acute cervical adenitis	17	14,600
Erysipelas	53	21,000
Acute tonsillitis	35	15,200
Acute labyrinthitis	12	8,800
Acute mediastinitis (following laryngectomy)	54	19,200*
Intestinal obstruction	35	27,800*

* Death occurred.

occurring both in the nuclear and in the granular elements of the young polymorphonuclears. The granules were larger and more deeply staining, and the nuclei tended to assume more bizarre forms. In addition, the cells were found to be more fragile and occasionally fat droplets and vacuole inclusions were found in the nuclei. These changes he did not consider of as great practical value, however, as the "nuclear shift," since they occurred before the crisis and remained after the crisis and were indicative of degenerative changes in the bone marrow.

Other workers presented various modifications of Arneth's classification. In 1924, Pons and Krumbhaar [3] named three classes; Cooke and Ponder,[4] in 1927, and Piney,[5] in 1928, also made noteworthy advances in the evaluation of qualitative changes in the leukocytes.

In 1930, Farley, St. Clair and Reisinger [6] brought forward the simplest classification yet advanced. They desired a method that could be used as a routine count and yet retain all the value of the more complex systems. They took as a basis the works of Krumbhaar and of Cooke and Ponder. The former had made a division into three classes: (1) metamyelocytes, (2) the nonsegmented types and (3) the segmented forms; the latter had pointed out that all divided nuclear masses were connected by a thin filament of nuclear material but they had used a five type classification. Combining these two systems, Farley and Reisinger divided polymorphonuclear neutrophils into two classes—the nonfilamented immature forms and the filamented mature forms. This gave a simple classification that could be used in conjunction with an ordinary differential count,

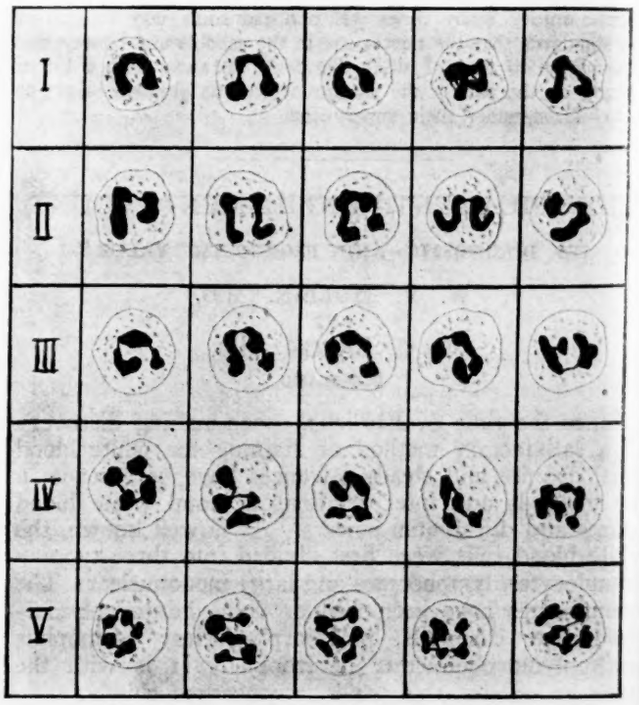

Fig. 3.—Classification of Cooke and Ponder, dividing polymorphonuclear neutrophils into five types, each type being designated by the number of divisions in the nucleus, noting that each nuclear segmentation was connected by a very fine filament of chromatin material. From Cooke and Ponder: The Polynuclear Count.

necessitating no added labor or training. By simply classifying the leukocytes as to the relative percentage of nonfilament neutrophils, filament neturophils, lymph-

2. von Schilling, Victor: Ueber die Notwendigkeit gründsätzlicher Beachtung der neutrophilen Kernverschiebung in Leukozytenbilde und über praktische Erfolge dieser Methode, Ztschr. f. klin. Med. **89**: 1, 1920.

3. Pons, C., and Krumbhaar, E. B.: Studies in Blood Cell Morphology and Function; Extreme Neutrophilic Leukocytosis with Note on Simplified Arneth Count, J. Lab. & Clin. Med. **10**: 123-126 (Nov.) 1924.

4. Cooke, W. E., and Ponder, Eric: The Polynuclear Count: The Nucleus of the Neutrophil Polymorphonuclear Leukocyte in Health and Disease, with Some Observations on the Macropolycyte, Philadelphia, J. B. Lippincott Company, 1927.

5. Piney, A.: Diseases of the Blood, Philadelphia, P. Blakiston's Son & Co., 1928.

6. Farley, D. L.; St. Clair, Huston; and Reisinger, J. A.: Normal Filament and Nonfilament Polymorphonuclear Neutrophil Count; Its Practical Value as Diagnostic Aid, Am. J. M. Sc. **180**: 336-344 (Sept.) 1930.

ocytes, monocytes, basophils and eosinophils, much valuable information may be added to the routine differential count.

Farley, St. Clair and Reisinger, in studying the blood of 100 normal adults by the method described, found that an approximate normal upper limit of nonfilament percentage could be set at 16. They also pointed out its value in diagnosing the presence of cryptic infections and as added presumptive evidence in cases of malingering.

The foregoing classification was used in the cases presented in this paper because of its simplicity of procedure while retaining all the valuable information of the former more complex methods. A slight modification was made in that instead of basing our observations on a count of 100 leukocytes, figures are reported on 100 polymorphonuclear neutrophils counted as well.

We have attempted in the cases here reported to attach a prognostic value to this count and our conclusions are based on the study of some thirty cases of

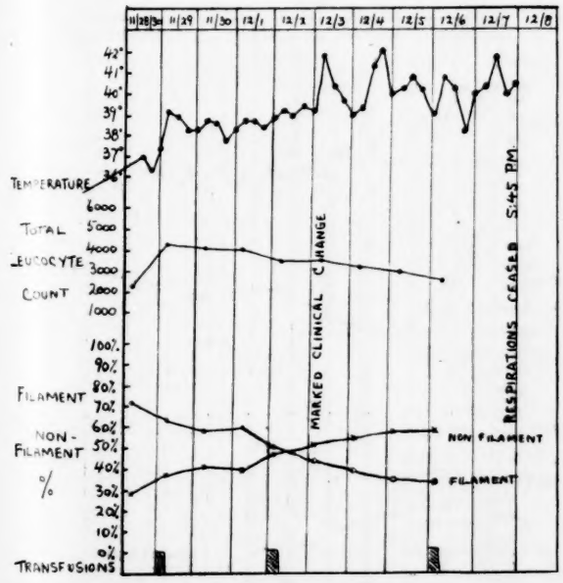

Fig. 4 (case 1).—Hemolytic streptococcic septicemia, generalized hemorrhages, with increasing nonfilament count over 50 per cent, terminating fatally.

acute infection taken from all services in the hospital. In all instances in which it was possible to do so, daily counts were made and also total leukocyte counts. It would take too much time to discuss each case in detail; consequently the cases studied, with the maximum nonfilament percentage found in each instance, are given in table 1, and a detailed discussion is given of ten of these cases, the majority of which are from services other than the otolaryngologic service, but chosen because they best illustrate the point in question. On examination of fifteen control smears from healthy adult individuals, a range of nonfilament percentages of from 8 to 16 was found, with an average of 12.1 per cent.

CASE 1.—A man, aged 35, admitted to the clinic, Nov. 28, 1930, complained of shortness of breath, masses on the thighs and groins, hemorrhage from the nose, and severe furunculosis of the face. Physical examination showed the spleen to be markedly enlarged and extensive areas of hemorrhage were present in the subcutaneous tissues of the arms, trunk and legs; there were large areas of furunculosis on the face and marked hemorrhage from the mucous membrane of the nose and throat. The patient was vomiting blood, but no blood was found in the stools or urine. The patient died, December 7th.

Here is pictured plainly a steadily increasing nonfilament count terminating in death, the nonfilament change preceding the changes in clinical symptoms, as seen in figure 4.

Pneumonia was noted clinically, December 3, with no change in the differential or white blood count, but a rise of 7 per cent in the nonfilament count preceded this condition by twenty-four hours.

This case is a good example of the additional information that may be obtained from a count of this type. Postmortem examination revealed hemolytic streptococci from the heart's blood, although blood cultures during the course of the illness were repeatedly negative, terminal pneumonia and hemorrhages from all the mucous surfaces being the final cause of death.

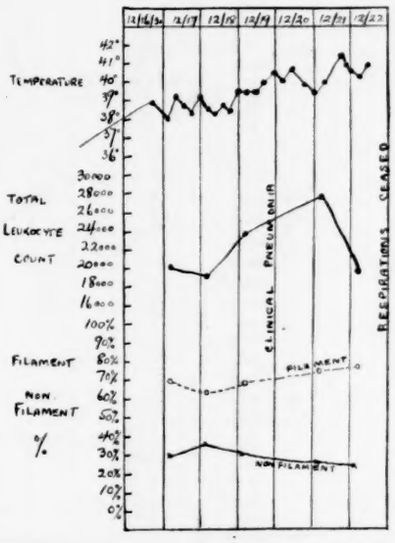

Fig. 5 (case 2).—Acute intestinal obstruction and general peritonitis with constant high nonfilament count.

CASE 2.—A woman, aged 60, was admitted to the Cleveland Clinic Hospital with a history of severe pain in the right upper quadrant, associated with nausea and vomiting, persisting for five days previous to admission. The vomitus had a fecal odor and no gas or feces had been passed by the rectum. An enema given two days previous to her admission had returned blood stained but clear. For two days previous to the patient's admission there had been no vomiting. Marked distention was present. The patient was never in a condition for operation during her stay in the hospital.

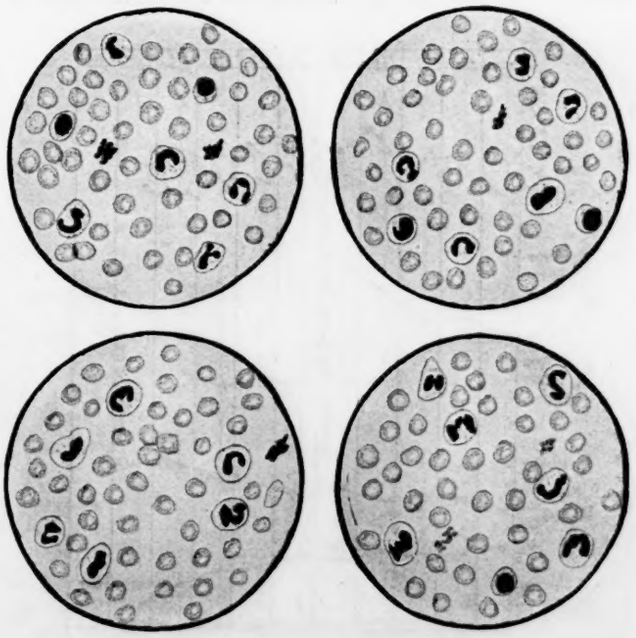

Fig. 6 (case 2).—Toxic changes in the nuclear structure of the polymorphonuclear neutrophils in a case of ruptured gastric ulcer and general peritonitis on the first, third, fourth and sixth days.

In this case is found rather than a steady increase, a constant high nonfilament percentage, beginning at over 30 with a gradual terminal fall. This is not a typical example of the increasing nonfilament percentage, but an interesting point in this case was the presence of marked toxic changes in the nuclei as illustrated in figure 6.

The patient showed steadily increasing weakness and toxicity, but, as has been pointed out, she was in no condition for operative intervention. Although a high white blood count was present throughout the disease, the marked change in the

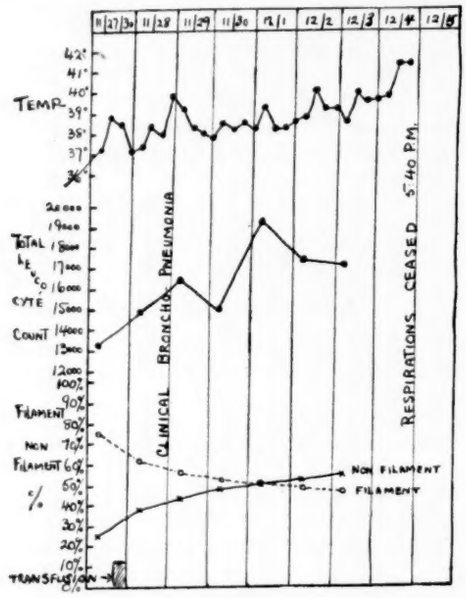

Fig. 7 (case 3).—Acute mediastinitis and bronchopneumonia following laryngectomy, showing increasing nonfilament count, terminating fatally.

nonfilament percentage is not seen, perhaps because of the decrease in bone marrow activity. The patient died on the sixth hospital day.

CASE 3.—A man, aged 62, was admitted to the clinic, Nov. 7, 1930, with a history of having had glands removed from his neck eleven months previously, the condition having been diagnosed at that time as carcinoma. The immediate history included hoarseness for two months and marked difficulty in

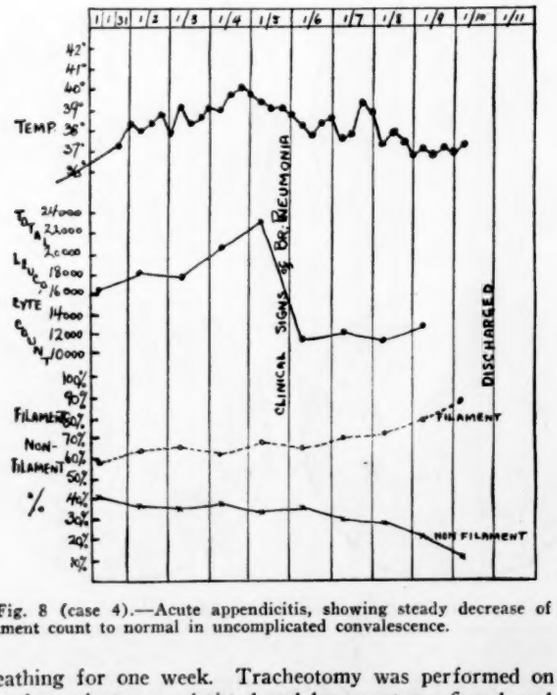

Fig. 8 (case 4).—Acute appendicitis, showing steady decrease of nonfilament count to normal in uncomplicated convalescence.

breathing for one week. Tracheotomy was performed on the day the patient was admitted and laryngectomy five days later. Infection occurred from the mouth through a pharyngeal fistula, and mediastinitis followed in spite of all treatment.

The patient was not seen until infection was well advanced, but the rapid rise seen on the second count was of grave prognostic significance even before the clinical picture was indicative of a possible fatal issue.

November 28, clinical bronchopneumonia was present late in the day, whereas a marked rise had already been noted in the nonfilament percentage that morning. The persistent high level of nonfilament cells slowly increasing to 50 per cent is well illustrated here in a case which terminated fatally.

CASE 4.—A man, aged 32, entered the clinic suffering from a typical attack of appendicitis of sixteen hours' duration. The course of examinations of the blood during his hospitalization is shown in table 5.

Here is seen the gradual steady return to normal percentage of the nonfilament cells in an uncomplicated case of acute appendicitis. As seen in figure 8, the white blood count showed a very rapid drop in twenty-four hours, Jan. 5, 1931. Although clinical signs of bronchopneumonia were recorded on this date, the lungs were perfectly clear the following day and the temperature returned to normal. The nonfilament count showed no change for the worse at this time, and it is hardly likely that any degree of infection was present in the lungs. The patient made satisfactory postoperative progress.

CASE 5.—A man when first seen was complaining of severe cold in the head, of ten days' duration; headache was a marked symptom, accompanied by a profuse nasal discharge. Treatment

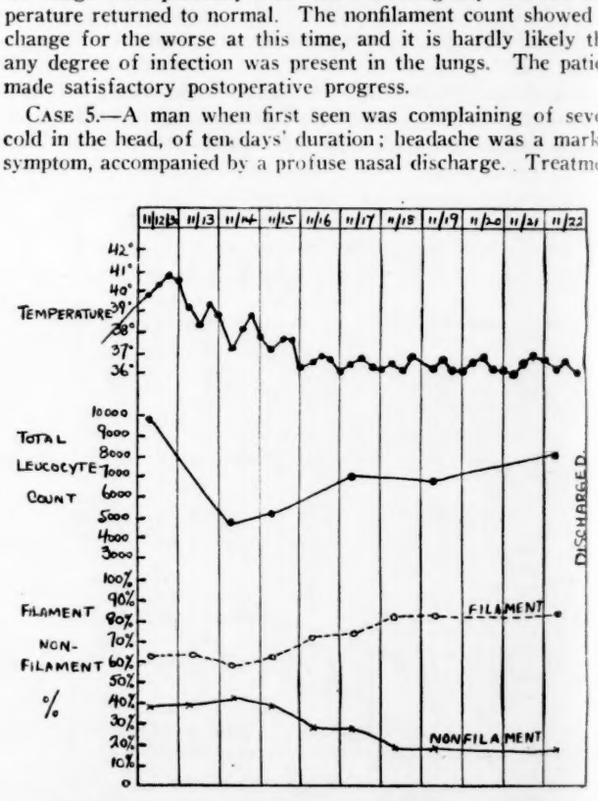

Fig. 9 (case 5).—Acute bilateral maxillary sinusitis, showing steady return of nonfilament count to normal during convalescence.

was instituted and a large amount of pus was obtained by suction from both nostrils.

On the fourth day of observation the left maxillary antrum was irrigated without difficulty through the natural opening. The return was clear. Reaction occurred the following day, the temperature rising to 102 F.; chills occurred.

Conservative treatment was followed and after a week, when marked evidence of sinus involvement was present, the left antrum was again irrigated and a large amount of pus obtained. The following day the patient again suffered a severe reaction and was admitted to the hospital.

The patient showed steady improvement after the third day, as evidenced by the temperature curve and the nonfilament percentage. This improvement, however, is not reflected in the total leukocyte count. This case is also an interesting example of the reactions that may follow the simple washing of an acutely infected sinus.

CASE 6.—A man was admitted to the hospital in a critical condition, suffering from severe abdominal pain and general collapse of three days' duration. Immediate operation was performed and a ruptured gastric ulcer with localized peritonitis was found. Repair and drainage were instituted and the patient made satisfactory progress until the third postoperative day.

Here is seen an acute abdominal condition with a very high nonfilament percentage before operation. Following operation and drainage, the nonfilament percentage gradually fell until the third postoperative day, when a marked rise was noted. Later on this day the patient's general clinical condition was markedly worse. Complications were suspected and on examination of the wound and abdomen a breaking down of the operative area was found and a diagnosis of general peritonitis was made. In spite of all treatment, the patient became steadily worse, the nonfilament count rising again with a fatal termination.

The total leukocyte count here again was never as high as one would suspect from the clinical picture, ranging, as seen in figure 10, from 6,000 to 12,000 and not following the clinical course as did the filament-nonfilament count.

CASE 7.—A man, giving a typical history of acute appendicitis, was operated on immediately after his admission to the hospital.

Table 8 shows the white blood count fluctuating quite markedly throughout the convalescence, but the patient showed very satisfactory postoperative progress, with the rapid return of the nonfilament relation to normal.

CASE 8.—A boy, aged 12 years, was admitted to the clinic with a typical history of acute mastoiditis. Operation was performed and the patient's convalescence was very satisfactory. This case is an example of satisfactory convalescence following operation in acute mastoiditis. Here again the nonfilament count follows closely the clinical improvement.

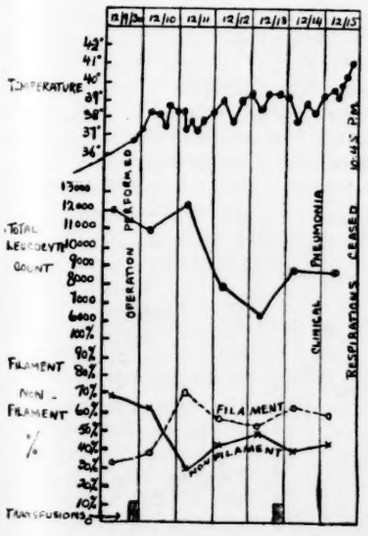

Fig. 10 (case 6).—Ruptured gastric ulcer and general peritonitis illustrating fatal termination with high nonfilament count and secondary rise of nonfilament count indicating complications.

CASE 9.—A woman, aged 35, was admitted to the clinic with an acute abdominal condition. The history was generally unsatisfactory. A diagnosis of general peritonitis was made, but the clinical picture was not critical, although the patient's temperature on admission was 104 F. The blood examinations in case 9 are shown in table 10.

Table 10 shows a very high nonfilament percentage on admission but a clinical picture that is not critical. The patient seemed to be in good condition generally, was not extremely toxic, and the heart and lungs were normal. On the second day, the patient's clinical condition was much worse, with early signs of bronchopneumonia and general collapse. She became rapidly worse and died on the fourth hospital day. This case illustrates the high nonfilament count giving a poor prognosis twenty-four hours before the clinical conditions became alarming.

CASE 10.—A boy, aged 6 years, gave a history of acute pain in the right ear six weeks previous to admission. The right ear had been discharging during this period and periodic attacks of chills and high temperature occurred. The diagnosis was acute mastoiditis with probable sinus thrombosis and blood stream infection, although the patient's condition appeared to be good.

On operation, the patient was found to have a very acute mastoid condition, with thrombosis of the lateral sinus extending down the jugular vein almost to the level of the clavicle. A mastoid operation was performed, the lateral sinus exposed and the jugular vein tied off. Postoperatively, an abscess developed about the jugular vein with meningitis, and the child died on the sixth postoperative day.

This is another example of an extremely high nonfilament count with a total leukocyte count lower than would be expected. Here, again, is found a very high nonfilament count at the beginning of the period of observation, which, following operation, dropped in only a slight degree; although the nonfilament percentage showed a slow decrease, it was so high at the onset that a favorable prognosis could not be expected.

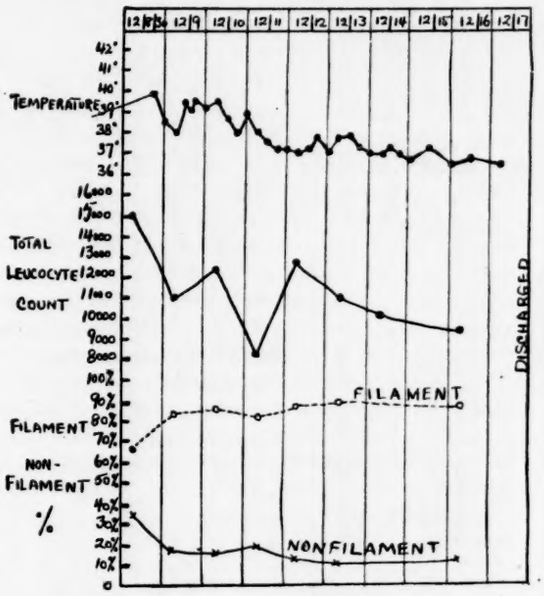

Fig. 11 (case 7).—Acute appendicitis, showing return of nonfilament count to normal in uncomplicated convalescence.

Seven cases of arthritis were studied to see whether any change could be noted in those cases in which the condition could be definitely attributed to an infectious origin. The results were rather promising in that those cases of the infectious type showed an average nonfilament count of 18.6 per cent, whereas the cases of noninfectious origin showed an average count of only 8.5 per cent. The individual counts are shown in table 12.

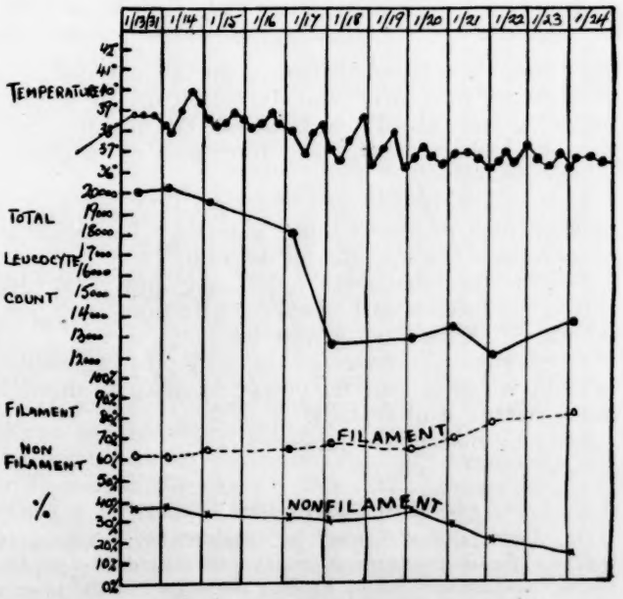

Fig. 12 (case 8).—Acute mastoiditis, showing steady return of nonfilament count to normal in uncomplicated convalescence. The patient was discharged, Jan. 25, 1931.

Table 12 brings out the possibility of an aid to differentiation in this type of case in which any added information is of definite value.

A limited number of cases of allergic phenomena were also studied, and it was found as a general rule in cases in which the asthma could be attributed to foci of infection that the nonfilament count was higher than in those cases in which the condition could be traced to definite protein sensitization.

In these cases, also, the eosinophilic percentage was interesting in that practically all showed eosinophils of over 4 per cent.

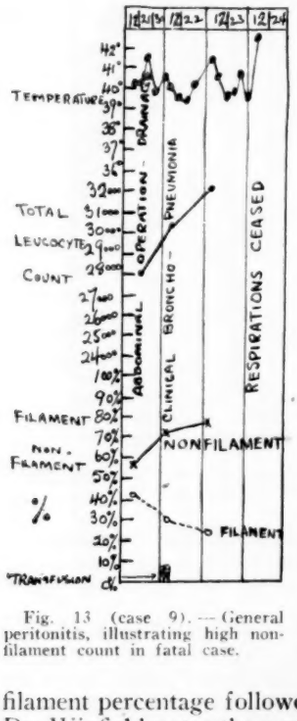

Fig. 13 (case 9). — General peritonitis, illustrating high nonfilament count in fatal case.

We were greatly interested in the observations of Dr. G. A. Winfield [7] of the Cleveland Clinic in his work on malarial treatment of syphilis. In these cases, nonfilament counts were observed following inoculation with the malarial parasite and very high percentages were noted, ranging as high as from 70 to 80 per cent of nonfilament forms with a marked leukopenia. This was extremely interesting in that none of these cases terminated fatally. It is interesting to note the rapidity with which the changes occurred and also the constancy with which the nonfilament percentage followed the course of the reactions. Dr. Winfield notes the nonfilament percentage to be the most constant blood picture in this treatment.

CONCLUSIONS

1. The filament-nonfilament count as outlined is a valuable aid in securing the clinical picture of disease, following more closely the course of the infection than the total leukocyte count and foretelling complications in convalescence.

2. In nonfilament counts of 50 per cent and over, a very guarded prognosis must be given. The majority of such cases reach a fatal termination.

3. Filament-nonfilament counts may prove valuable aids in the differential diagnosis of infections from noninfectious allergies and arthritides.

4. Filament-nonfilament counts may prove a valuable basis by which to gage the dosage of malarial injection in the treatment of syphilis.

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ABSTRACT OF DISCUSSION

DR. THOMAS FITZ-HUGH, JR., Philadelphia: This work confirms the observations of others and in addition presents several new applications of Farley's method. I would offer a few words of caution which are intended as supplementary to rather than as critical of the report of Drs. Mullin and Large. In pathologic blood it is sometimes difficult to decide whether a given cell is an abnormal lymphocyte, a young myeloid cell, or a damaged monocyte. In other words, some "nonfilament neutrophils" may be mistaken for and counted as monocytes or lymphocytes. Conversely, some lymphocytes may be mistakenly counted as young myeloid cells. In addition to these, there is the added difficulty of deciding when a filament is not a filament. The differentiation of a "true filament" connecting two separate lobes of a "poly" from a thin band of nuclear chromatin connecting separate parts of a "single lobed poly" is not always easy. Finally, having made the proper count, preferably serial counts day after day, one has to interpret the results. From the standpoint of differential diagnosis, I have not obtained any great assistance from this method. Its especial value in my experience has been to give added information concerning the severity of infection and to aid in estimating the trend of the battle between invasion and defense. I have observed in infants and pregnant women that the response to infection of nonfilamented neutrophils seems greater than in other individuals under similar conditions. I have observed some apparent discrepancies in the method. For example, in the condition known as infectious mononucleosis or glandular fever there is sometimes a marked "shift to the left" which belies the favorable outcome in this interesting disease. In so-called agranulocytic angina, the few patients that have recovered or have entered on a blood remission under my observation have shown an outpouring of young nonfilamented neutrophils which may then constitute an almost 100 per cent nonfilament count as a favorable omen. These are rare and only perhaps apparent exceptions. All in all, the method is valuable, and as Drs. Mullin and Large have indicated, it warrants more general use.

DR. JOHN J. SHEA, Memphis, Tenn.: Drs. Mullin and Large in their presentation have attracted attention to a new scientific procedure, "the filament and nonfilament count." The filament count is an improvement on the von Schilling count, and it is also superior to the ordinary study made by the total, differential and white count, in arriving at a diagnosis. The toxins that gain their entrance through the nose and throat, especially through the lymphatic tissues of the throat, may either stimulate or paralyze the hematopoietic system: a better knowledge of this system is revealed by a study of the blood in this type of infection. The ordinary white cell has a life of five days in the circulation and the bone marrow houses some mature cells but mostly immature cells. A sudden demand on this system will bring out the mature cells and along with them a few immature cells. By a study of the nonfilament count one is able to show when this demand is greater than the physiologic possibilities of this system. An examination of this type should be made by the same technician and made daily, and in suspected cases as often as every eight hours, because it will show some change as quickly as eight hours. Toxins may either paralyze, as in the first case, or act as a stimulant, as in the second case of Drs. Mullin and Large. The action of the toxins on the white blood cells is not always parallel with their action on the red blood cells. In fact, these two systems are entirely distinct. In this count the differentiation is in all of the white blood cells.

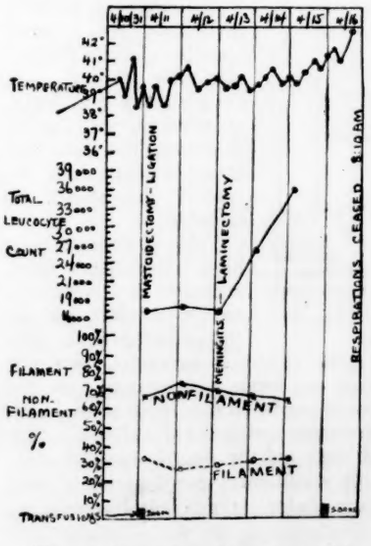

Fig. 14 (case 10).—Acute mastoiditis with jugular thrombosis and meningitis, showing constant high nonfilament count with a fatal termination.

DR. AUSTIN A. HAYDEN, Chicago: In a somewhat general way in the last few years the importance of blood counts in nose and throat work has been greatly augmented. In the first place, the recent condition that has received so much study, agranulocytic angina, shows the great importance of making routine blood counts in nearly every sore throat that presents any sort of unusual complications. I was struck with what Dr. Fitz-Hugh mentioned in regard to agranulocytic angina,

7. Winfield, G. A.: Personal communication to the authors.

that there will be a large number of nonfilamented cells in a case that is showing recovery. I believe in the absence of a greatly diminished number of white cells that is quite in conformity with the proposition that Dr. Mullin has brought to the section.

DR. W. V. MULLIN, Cleveland: I want to emphasize what Dr. Shea has said, that these counts should be made by the same individual. I know that Dr. Large will be disappointed when I go home and tell him that Dr. Shea recommended that these counts be made every eight hours; it is bad enough to make one every twenty-four hours. We have tried to apply this to all types of infection to see whether we could find out anything new about it.

SIGNIFICANT PROBLEMS IN ACUTE ANTERIOR POLIOMYELITIS

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NEW YORK

Although the researches of the past twenty years have exposed many of the complicated secrets of acute anterior poliomyelitis, there are still certain key points which remain unsolved. Of these the most pressing are, first, the exact way or ways of transmission; second, the sure diagnosis of the disease before the moment of invasion of the central nervous system; and, third, a satisfactory method of protective immunization. An answer to the first of these problems would quickly set at rest the present justifiable anxiety of parents, because a real step toward epidemic control would follow. The suspected healthy carrier and the unrecognized mild case not showing paralysis together form a combination which utterly defeats the ends of any but absolute quarantine of entire families. If, in addition to the now firmly established fact of direct transmission from person to person, there be added the possibility of raw food and milk borne infections, successful epidemic control is well nigh out of the question. Consequently, it is quite impossible to answer authoritatively the frequent parental query: "Shall I take the children away?" As matters stand it is doubtless best to advise that flight from a known focus usually is futile. There are too many instances in which, at the new location of hopes for safety, the fleeing family finds itself settled next door to a case which developed on the day of their arrival. Ordinarily it is better to remain in the infected area and rely on the skill of the aroused and alert physicians to make an early diagnosis and administer immune human serum.

The second master key, which indeed is almost fashioned, is that which opens the diagnostic lock in the preparalytic stage. So far as the individual stricken child is concerned, the solution of this point may be the means of saving life or preventing paralysis. The scope and purpose of this paper, however, do not permit a discussion of the clinical picture of the systemic phase of the disease. But there are numerous adequate descriptions of it in the literature.[1]

There is ample evidence from the laboratory experiments of Flexner and Lewis, Flexner and Stewart, Aycock and others[2] that serum from the blood of recovered human patients will neutralize the virus of poliomyelitis and prevent infection in the monkey. But it is essential that the serum should be introduced into the animal at such a time that it may combine effectively with the virus before the latter has laid hold on the tissues of the central nervous system. This time can be arbitrarily controlled in the experimental animal. But the mechanism of the disease in human beings is such that it is difficult to trace and capture the impending moments when the virus, already broken through the barriers of the meningochoroid plexus, is about to attack the cord. These are precious moments indeed, for during them the virus is in transit from the systemic circulation to the anterior horn cells and may be intercepted by the neutralizing serum.

Recently, it has been shown by Andrewes[3] that, when a virus of the filtrable class has made its biologic union with the threatened tissue cell, it is no longer within the reach of a neutralizing serum. Observations relating to the protection afforded by phagocytes to ingested bacteria were made earlier by Rous and Jones.[4] These facts may explain why those physicians who have treated infantile paralysis believe that it is useless to give the serum after muscle weakness has appeared. If it is a fact that a virus which has already combined with its prey-cell is safely entrenched, the unconvincing nature of serum treatment statistics in acute poliomyelitis can be explained.

As Aycock[2] has pointed out in a careful analysis, there are many cases erroneously classed as preparalytic. The muscle weakness, subsequently shown to exist by spring balance tests, simply has not been detected in the acute period. Such cases treated by immune serum declare against its efficacy. But there is another stage in the disease which precedes that of beginning muscle weakness in which there is clear clinical evidence that the anterior horn cells are already intoxicated though not yet seriously injured. This is the stage of ataxic tremor and muscle twitching. It seems to be analogous to the excitement stage of the experimental disease in monkeys.

When this ataxic tremor sets in it is fair to assume that the virus has already entered into conjunction with the anterior horn cells. The physiologic effect of this first entry is one of stimulation. But since this union has been formed the moment may be too late to expect successful neutralizing effects from the serum. Consequently, these cases, should they go on to paralysis, will likewise fail to support the therapeutic value of the serum. Clearly then the brief interval of time between the moment of choroid plexus penetration and the moment of virus-cell union is the precious period during which the serum can be expected to neutralize the invading virus and so prevent paralysis. Not only is this period of short duration, but it is extremely difficult to place accurately in the course of the malady. The accompanying chart indicates the mechanism of the disease; furthermore, it shows the "passage period," when the virus is en route from the systemic circulation and not yet attached to the nerve cells.

It may be asked why the serum should not be given intraspinally at the time of the diagnostic punctures at *A* and *B* when the fluid is still negative. The objection to so doing may perhaps be only theoretical, but it deserves discussion. Flexner and Amoss[5] have shown that the choroid barrier is a remarkably resistant one

1. Luther, E. H.: Boston M. & S. J. **197**: 1175 (Dec. 22) 1927. Draper, George: Acute Poliomyelitis, Philadelphia, P. Blakiston's Son & Co., 1917.

2. Flexner, Simon; and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, J. A. M. A. **54**: 1780 (May 28), **55**: 662 (Aug. 20) 1910. Flexner, Simon; and Stewart, F. W.: New England J. Med. **199**: 213 (Aug. 2) 1928. Aycock, W. L., and Luther, E. H.: Preparalytic Poliomyelitis, J. A. M. A. **91**: 387 (Aug. 11) 1928.

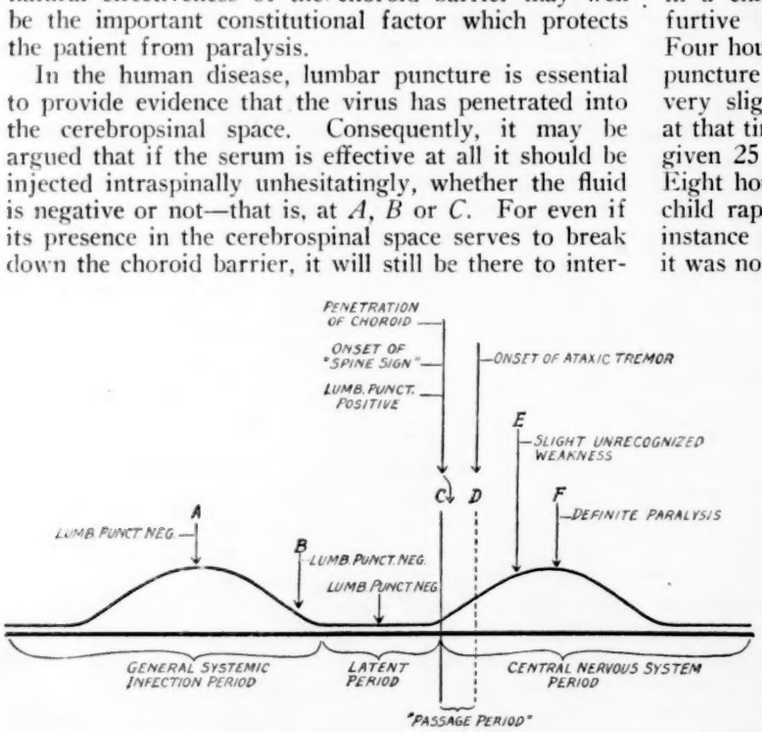
3. Andrewes, C. H.: Brit. J. Exper. Path. **10**: 273 (Aug.) 1929.

4. Rous, Peyton; and Jones, F. S.: J. Exper. Med. **23**: 601 (May) 1916.

5. Flexner, Simon; and Stewart, F. W.: Protective Action of Convalescent Poliomyelitis Serum, J. A. M. A. **91**: 383 (Aug. 11) 1928. Flexner and Amoss: J. Exper. Med. **20**: 249, 1914.

unless the integrity of its cells has been disturbed by some slight injury. In monkeys even the performance of a lumbar puncture and reinjection of spinal fluid from another monkey may reduce the choroid's defense. But the intraspinal injection of homologous serum abolishes it almost completely. Further experiments in this field indicate that the virus cannot pass from the blood to the cerebrospinal fluid and nervous tissues until there has been an injury to the choroid plexus and meningeal blood vessels and lymphatics. Evidently the natural resistance of these structures to such virus passages must differ greatly in those individuals who become paralyzed and those who do not. Indeed, the natural effectiveness of the choroid barrier may well be the important constitutional factor which protects the patient from paralysis.

In the human disease, lumbar puncture is essential to provide evidence that the virus has penetrated into the cerebropsinal space. Consequently, it may be argued that if the serum is effective at all it should be injected intraspinally unhesitatingly, whether the fluid is negative or not—that is, at *A*, *B* or *C*. For even if its presence in the cerebrospinal space serves to break down the choroid barrier, it will still be there to intercept the penetrating virus. In the present state of knowledge, however, it would seem wiser to omit the intraspinal dose at *A* or *B*, and to give a large dose, 50 cc. if possible, intravenously or intramuscularly. Doubtless by this procedure certain cases which are not acute poliomyelitis will be treated. But the serum is harmless. Obviously, when the fluid has become positive at *C*, from 15 to 20 cc. of human immune serum should be given at once intraspinally in addition to an intravenous or intramuscular dose.



Significant moments in the clinical course of the disease. The latent period may consume only a few hours or it may last for several days. Sometimes it is so slight and short that the two phases seem to fuse.

Thus it would seem appropriate to combine the maneuver of repeated lumbar puncture with the most refined clinical observation. By this means one should be able to apprehend, within a very short time of its occurrence, the moment when the virus has broken through the choroid barrier and has begun to irritate the meninges. In addition there is good reason to believe that the serum which has been given intravenously at the time of the negative fluid observations in suspicious cases will be effective in preventing paralysis.

Recently a case was brought to my attention which had shown a negative fluid at *A* and *B*, the punctures being separated by eighteen hours. Examination of the child nine hours later showed no evidence of the spine sign. But three hours after this examination the spine sign was present. A puncture then showed increased pressure, 50 cells, of which 60 per cent were polymorphonuclears, and positive globulin. Furthermore, there was no ataxic tremor. It would seem, therefore, that the third puncture had been made during the interval *C-D* or actually within the "passage period." This child received 15 cc. of human immune serum intraspinally and 60 cc. intramuscularly. The temperature was normal twenty-four hours later, and there was recovery without muscular weakness.

In another case, lumbar puncture was not done at *A* when the classic picture of an acute infection existed in a child, aged 7. At that time the drowsy eyed, furtive look of poliomyelitis was clearly present. Four hours later the same picture appeared and lumbar puncture was again postponed. Three hours later a very slight spine sign was noted. Lumbar puncture at that time resulted in a negative fluid. The child was given 25 cc. of human immune serum subcutaneously. Eight hours later the temperature was normal and the child rapidly returned to a state of well being. This instance is mentioned with the obvious proviso that it was not one of acute poliomyelitis. But it is the type of case which causes great perplexity in time of epidemic. If, however, it was an instance of the disease, the puncture must have been done very close to *C*, before the "passage period" in a case which was not destined to cross the *C* line. At present there are no means of making a proved diagnosis of such a case.

A third illustration in which the position of the "passage period" was indicated by the correlation of the clinical picture and the spinal fluid observations is provided by the case of a boy, aged 7, whose parents had not called a physician until the second phase of the disease had set in. The physician made a puncture, and, because he was not equipped to examine the fluid at the bedside, took the specimen to the laboratory. There it was found to contain 150 cells and positive globulin. In an hour another lumbar puncture was made. Fifteen cc. of human serum was given intraspinally and 50 cc. intravenously. Twelve hours later weakness of the right anterior tibial group developed and later still one deltoid failed. But it is significant to note that at the time of treatment the patient exhibited marked ataxic tremor, showing that the anterior horn cells were already involved with the virus. Clearly in this case the therapeutic puncture was done at a time subsequent to the line *D*, or after the end of the "passage period."

These considerations suggest why serum therapy apparently often fails to check paralysis even though it is administered in what is clinically the preparalytic stage. Not only is serum ineffective after paralysis has appeared, but it may well be too late to hope for success after the ataxic tremor has developed. However, at present there is not sufficient knowledge to justify withholding vigorous serum therapy at this stage. Serum should, of course, be given when ataxic tremor is present.

So far as protective immunity for human beings is concerned, there is not yet sufficient experience on which to base an opinion. Flexner and Stewart [5] have shown that by the use of human immune serum monkeys can be protected for short periods of from

four to five days. But the experimental disease, because of direct cerebral inoculation, is a far more drastic test presumably than is the more slowly developing human malady. These authors therefore recommend the subcutaneous injections of from 20 to 25 cc. of serum in children who have been obviously exposed in an area of epidemic activity. Failing an adequate supply of serum, there is no objection to giving exposed children 20 cc. of the father's whole blood intramuscularly.

To sum up, then, it can be said that a preparalytic, indeed, a preataxic tremor stage diagnosis of poliomyelitis can and should be made. The time relationships between the systemic phase, the "passage period" and the ataxic tremor phase are fairly well indicated by the correlation of clinical signs and spinal fluid observations. Furthermore, it has been definitely shown that immune human serum can block paralysis in monkeys infected with poliomyelitis virus. Having these facts at one's disposal, one should be able to prevent paralysis except in those comparatively few cases which display so slight and transient a systemic phase that the second or central nervous system phase arrives apparently as the first sign of illness.

33 East Sixty-Eighth Street.

GASTRIC SECRETION AFTER STIMULATION WITH HISTAMINE

IN THE PRESENCE OF VARIOUS TYPES OF GASTRIC AND DUODENAL LESIONS *

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AND
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Every physician interested in gastric disease today is desirous of knowing whether any advantage exists in the use of histamine instead of the Ewald meal as a stimulus to gastric secretion. The problems presented are: (1) whether this new test is so much more helpful diagnostically that it should replace the Ewald meal; (2) whether there is any one field of gastro-intestinal disease in which it can give information of outstanding value, other than in differentiating true and false anacidity, a field in which its value has been accepted since the work of Gompertz and Vorhaus,[1] Andresen,[2] and Bockus and Bank,[3] and (3) whether Bloomfield and Polland[4] are justified in attaching to determinations of volume and acidity an importance great enough to distinguish, at times, benign from malignant lesions.

With the idea of gaining an answer to these questions, parallel data were collected concerning 120 patients the majority of whom were suffering from peptic ulcer or from carcinoma of the stomach. These data were critically examined to see wherein there was agreement and wherein difference existed. Obviously, if the majority of the data demonstrated agreement there could be little reason for changing to a new procedure.

In order to get more complete information on the composition of the gastric juice, the total chloride and total base contents were determined in addition to the values determined in the usual routine of chemical examination. This seemed particularly desirable in view of the recent work of Bulger and his associates,[5] who found that the total chloride, before and after stimulation (water meal), remained practically constant, and argued that the secretion of hydrochloric acid depended on inhibition of secretion of base rather than on increase in secretion of chloride. If the concentration of chloride remains constant, it should prove more reliable than concentration of acid, which varies with the stimulus, in arriving at the true secretory capacity of the stomach.

Tests were made on thirty-five patients in whose stomachs no demonstrable lesion was found, on forty with duodenal ulcer, on eleven with benign gastric ulcer, and on thirty-four with gastric carcinoma.

Continuous aspiration was practiced, and analyses were made at intervals of ten minutes, as advocated by Bloomfield. The fasting stomach was emptied as completely as possible. After two or three intervals of ten minutes each, during which the fasting content was aspirated, 0.1 mg. of histamine, in the form of acid phosphate, for each 10 Kg. of body weight was injected hypodermically. From three to seven fractions were secured after the histamine had been injected. The patient was cautioned against the swallowing of saliva, and frequent changes in his position were made. Cases in which the content was bile-stained were not included in this group.

The concentration of free hydrochloric acid was determined by titration, Toepfer's reagent being used. The total acidity was determined by titration, phenolphthalein being used as an indicator. The value is expressed in terms of cubic centimeters of tenth-normal sodium hydroxide required to produce the end point in 100 cc. of filtered gastric content. The method of Stadie and Ross was used for the determination of total base, and total chlorides were determined by the procedure of Wilson and Ball.

In the following consideration,[5a] the concentration of free hydrochloric acid and of total chloride following administration of histamine refers to the highest concentration of each following stimulation with histamine. The volume may be defined as the total volume obtained during the first three periods of ten minutes following administration of histamine. It was thought that by taking three samples the error involved in removing any one sample would be lessened.

COMPARATIVE VALUES OF CONCENTRATION OF FREE HYDROCHLORIC ACID FOLLOWING ADMINISTRATION OF HISTAMINE AND FOLLOWING THE EWALD MEAL

Bar diagrams (chart 1) representing the frequency distribution of values for free acidity obtained with the Ewald meal in cases of duodenal ulcer, gastric ulcer or gastric carcinoma show that there is a range of acidity between 1 and 39 (units of free acid) associated with all three lesions. Of the carcinomas 42.8

* From the divisions of Medicine and of Chemistry, the Mayo Clinic.
* Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

1. Gompertz, L. M., and Vorhaus, M. G.: Studies of the Action of Histamine on Human Gastric Secretion, J. Lab. & Clin. Med. **11**: 14-21 (Oct.) 1925.
2. Andresen, A. F. R.: Fractional Gastric Analysis with Histamine, Tr. Am. Gastro-Enterol. A., 1926, pp. 53-84.
3. Bockus, H. L., and Bank, Joseph: Value of Histamine as a Test for Gastric Function, Arch. Int. Med. **39**: 508-519 (April) 1927.
4. Bloomfield, A. L., and Polland, W. S.: The Diagnostic Value of Studies of Gastric Secretion, J. A. M. A. **92**: 1508-1513 (May 4) 1929.
5. Bulger, H. A.; Stroud, C. M., and Heideman, M. L.: Studies of the Chemical Mechanism of Hydrochloric Acid Secretion: Electrolyte Variations in Human Gastric Juice, J. Clin. Investigation **5**: 547-560 (June) 1928. Bulger, H. A., and Allen, D. S.: Studies on the Mechanism of Gastric Hydrochloric Acid Secretion, Proc. Soc. Exper. Biol. & Med. **24**: 902-903 (June) 1927.

5a. By free acidity is meant free hydrochloric acid.

per cent, of the gastric ulcers 50 per cent, and of the duodenal ulcers 20.5 per cent fall within this zone. With histamine there is a range of acidity between 20 and 99 (units of free acid) with all three lesions. Of the carcinomas 38.5 per cent, of the gastric ulcers 100 per cent, and of the duodenal ulcers 40 per cent fall within this zone. This obviously means that, when in a given case one finds that the acidity lies in this zone, one gains no help in the attempt to distinguish

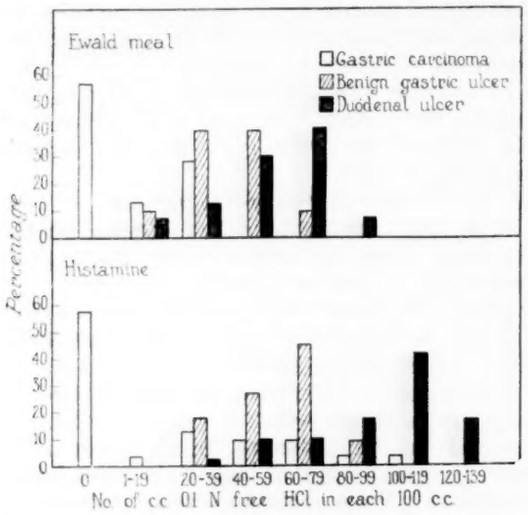

Chart 1.—Frequency distribution of the concentration of free hydrochloric acid after the Ewald meal and after administration of histamine.

the disease present from the other two diseases. It does not mean that when, in a given case, one finds low acidity, not lying in the zone, one can be certain that a malignant lesion is present, for benign gastric ulcers are associated with hypo-acidity; nor does it mean that, when the value for free hydrochloric acid is higher than 99, duodenal ulcer rather than malignant obstruction at the pylorus is present. This is as true with the stimulus of histamine as with the Ewald meal. Moreover, while the range of free acidity is greater with histamine and the acidity in the majority of cases of gastric carcinoma is separated more widely from that of the majority of cases of duodenal ulcer with reference to acidity, the overlapping after histamine has been used includes a greater percentage of cases than when the Ewald meal is used. It therefore does not appear that values for free acid following administration of histamine possess an advantage from a diagnostic standpoint over values obtained with the stimulus of the Ewald meal.

The mean concentrations of free acid obtained in cases of duodenal ulcer, benign gastric ulcer, and gastric carcinoma following the Ewald meal were 54.5 ± 2.1, 39.6 ± 3.3, and 10.1 ± 1.4, respectively, and following administration of histamine 102.18 ± 4.2, 58.80 ± 3.8, and 21.93 ± 3.5. This means that, irrespective of the stimulus used, gastric carcinomas have a tendency toward low free acidity and duodenal ulcers toward high free acidity. In the cases of gastric ulcer in this small group, the free acidity lay between that in cases of duodenal ulcer and that in cases of carcinoma. In fact, it would seem that there is a definite relationship between the concentration of free acid following the Ewald meal and following administration of histamine. In order to test this point, a graph (chart 2) was constructed showing the correlation between the highest concentration of free acid after administration of histamine and the highest concentration of free acid after the Ewald meal; it involves thirty-two patients without disease in the stomach, thirty-eight patients with duodenal ulcer, ten patients with benign gastric ulcer, and eleven patients with gastric carcinoma, a total of ninety-one. For the total group, the correlation is good (coefficient $+0.672 \pm 0.04$). The correlations are likewise significant for the patients without disease in the stomach and duodenum (coefficient $+0.759 \pm 0.05$) and for the patients with duodenal ulcer (coefficient $+0.392 \pm 0.05$). The correlations for the patients with benign gastric ulcer (coefficient $+0.231 \pm 0.11$) and for the patients with gastric carcinoma (coefficient $+0.431 \pm 0.17$) are not high. These studies of correlation suggest that the Ewald stimulus is probably as reliable as histamine in producing an average response in a group of cases.

VOLUME OF SECRETION

A study of secretory volume gives parallel information. When one plots on the same coordinates (chart 3) bars representing the frequency distribution of values for volume of secretion in cases of duodenal ulcer, gastric ulcer and gastric carcinoma, one finds that there is a range of volume from 40 to 179 cc. common to all three lesions. Of the carcinomas 66.7 per cent, of the gastric ulcers 91.9 per cent, and of the duodenal ulcers 92.1 per cent fall within this range of volume. This means that if, in a given case, the volume of secretion falls between 40 and 179 cc., no information of absolute value in differentiating the three diseases is obtained. Volumes of less than 20 cc. might be presumptive evidence of a malignant growth, but certainly higher volumes do not rule it out.

The mean volumes for the groups of duodenal ulcer, gastric ulcer, and carcinoma were 108.52 ± 5.2, 93.72 ± 10.4, and 63.96 ± 2.7 cc., respectively. In duodenal ulcer the tendency is toward high volume, and in

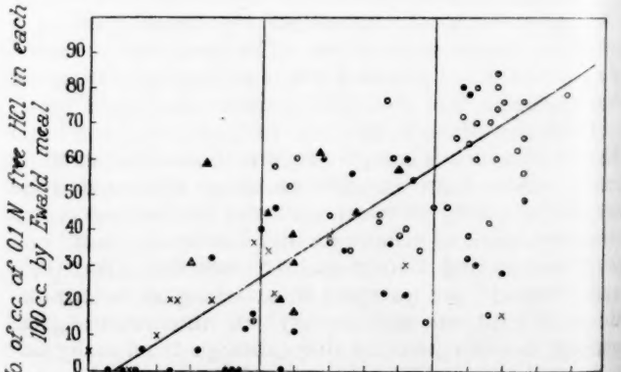

Chart 2.—Correlation between the highest concentration of free hydrochloric acid after administration of histamine and after the Ewald meal: dot, no disease in stomach or duodenum; circle, duodenal ulcer; triangle, gastric ulcer; cross, gastric carcinoma.

gastric carcinoma toward low volume, whereas in benign gastric ulcer the tendency is to volumes between the other two. The tendency in secretory volumes is apparently similar to the tendency in the concentration of hydrochloric acid.

In order to study the significance of the mean volume and acidity in these three conditions, a graph (chart 4) was made showing the correlation between the highest concentration of free hydrochloric acid and

the total volume for the first three periods of ten minutes following administration of histamine to thirty-five patients who did not have disease of the stomach, to thirty-eight patients who had duodenal ulcer, to eleven patients who had benign gastric ulcer, to thirteen patients who had gastric carcinoma with free acid in the gastric secretion, and to the total group. The variations in volume of secretion for each concentration of free acid are large. This seemingly minimizes the importance of the association of high mean volumes and high free acidity in duodenal ulcer,

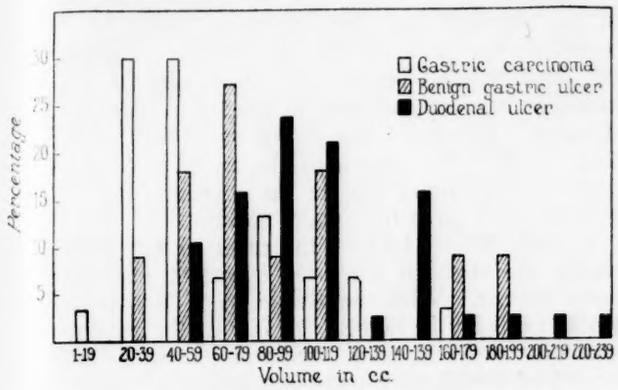

Chart 3.—Frequency distribution of volume of secretion in cases of gastric carcinoma, benign gastric ulcer and duodenal ulcer.

of moderately high mean volumes and low mean free acidity in benign gastric ulcer, and of low mean volumes and low free acidity in gastric carcinoma.

Horizontal and vertical lines, drawn through the center of the chart, show that although there is a definite tendency for the concentration of acid in cases of duodenal ulcer to be above 70, not only do the acidities vary, but also the volume may be either more or less than 100 cc.; although in cases of gastric ulcer the acidity is for the most part below 70, it may be above 70 and the volume varies markedly; although in cases of gastric carcinoma in which there is free hydrochloric acid in the gastric juice the acidity for the most part is below 70, the free acidity may be above this point, and the volume may be large or small regardless of the degree of free acidity.

If the cases in which the volume falls at the extremes of the range of acidity are examined, it is found that an abnormally high volume is obtained for the most part in cases of peptic ulcer or carcinoma, conditions which are commonly associated with retention of secretion in the fasting stomach, due to obstruction, pylorospasm or gastrospasm. If this content of the fasting stomach is not completely emptied before histamine is given, the retained secretion is not uncommonly aspirated later to increase abnormally the volume obtained after administration of histamine. Small volumes of gastric secretion may be due to technical error in not obtaining all the secretion, or perhaps to abnormally rapid emptying.

In spite of disturbances in motor function and technical error there is correlation between volume and acidity. This belief is based on the definite correlation between volume and acidity in those groups which contain a significant number of cases, that is, in the total group of cases (coefficient $+ 0.545 \pm 0.017$), in the cases of duodenal ulcer (coefficient $+ 0.346 \pm 0.09$), and in the cases in which no disease could be demonstrated in the stomach or duodenum (coefficient $+ 0.496 \pm 0.09$). This belief is further strengthened by the significant correlation (coefficient $+ 0.545 \pm 0.017$) obtained by Vanzant,[6] using figures obtained in 135 aspirations by tube in dogs. Further studies on a larger series of persons without gastric complaints of any kind will be necessary to prove or disprove the existence of a close correlation. In pathologic cases the technical difficulties of complete aspiration, as well as the influence of obstruction, pylorospasm and gastrospasm, will make interpretation of the significance of volume difficult.

CONCENTRATION OF TOTAL CHLORIDE

To determine whether the concentration of total chloride gives information that the concentration of free hydrochloric acid does not give, concerning the secretory capacity of the stomach, the correlation between the highest concentration of chloride and of free hydrochloric acid following stimulation with histamine was studied in thirty-five cases in which there was no organic disease in the stomach or duodenum, in forty-one cases of duodenal ulcer, in eleven cases of benign gastric ulcer, and in thirteen cases of gastric carcinoma in which free acid was present in the gastric juice. The correlation was very high in the total group (coefficient $+ 0.957 \pm 0.005$). The correlation was likewise high in those cases in which there was no organic disease in the stomach or duodenum (coefficient $+ 0.820 \pm 0.037$), in the cases of duodenal ulcer (coefficient $+ 0.787 \pm 0.04$), and even in the cases of gastric carcinoma associated with free acid in the juice (coefficient $+ 0.771 \pm 0.08$). Of the last there were only thirteen available for study. In the cases of benign gastric ulcer, the correlation was not so good (coefficient $+ 0.269 \pm 0.059$); in a large group of such cases this lesser correlation may or may not prove significant. The correlation between the highest concentration of total chloride and the highest

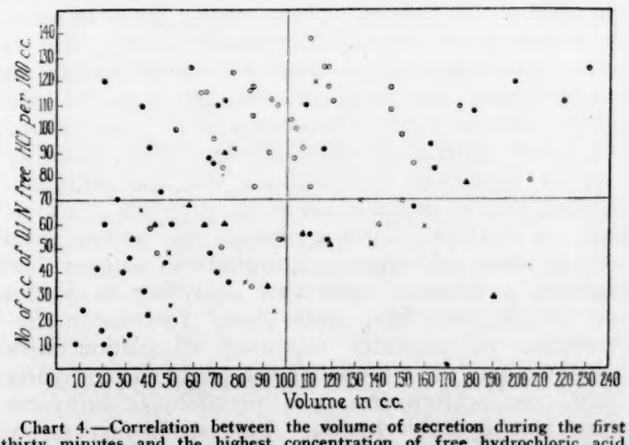

Chart 4.—Correlation between the volume of secretion during the first thirty minutes and the highest concentration of free hydrochloric acid following administration of histamine: dot, no disease in stomach or duodenum; circle, duodenal ulcer; triangle, gastric ulcer; cross, gastric carcinoma.

concentration of free hydrochloric acid in the several groups is so high that, when the concentration of free acid after administration of histamine is known, little, if any, extra information comes from the estimation of chlorides. For clinical purposes the estimation of total chlorides does not appear to give a more accurate idea of the secretory capacity of the stomach than the estimation of the concentration of free hydrochloric acid.

A possible exception to this statement occurs in an interesting group of four cases which are definitely

6. Vanzant, Frances R.: Personal communication to the authors.

separated from the lower end of the zone of correlation (chart 5). Three of these cases were classified as instances of functional derangement and one as a case of carcinoma. In each case the concentration of total chloride was much greater than would be expected from the concentration of the free acid. Titration of the fasting secretion gave a relatively low value for chloride, absence of free hydrochloric acid, and a very high concentration of base. Following administration

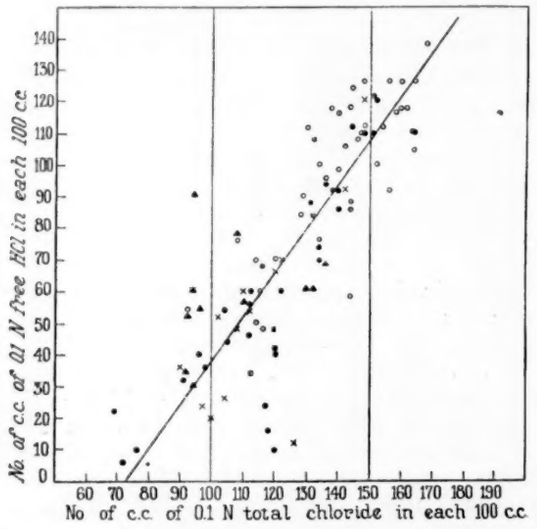

Chart 5.—Correlation between the highest concentration of total chloride and of free acid following stimulation by histamine: dot, no disease in stomach or duodenum; circle, duodenal ulcer; triangle, gastric ulcer; cross, gastric carcinoma.

of histamine, the chloride increased markedly, to a concentration comparable to acidity of 40 to 70; the concentration of base was not lowered appreciably in contrast to the usual change encountered with increasing acidity. The excess of base present seems to mask the secretion of free acid until the excess base is neutralized. Similarly, in certain cases of anacidity it has been noted that an abnormally high value for base will persist, and a rise in concentration of total chloride will follow stimulation with histamine. Such anacidity may be false, the base masking the acid secretion. Several possible explanations of the presence of excess base are available. Such a stomach may secrete juice rich in base. Duodenal regurgitation, without bile pigment, a frequent occurrence according to Medes and Wright,[7] may have taken place. Increase in concentration of chlorides following stimulation with histamine may serve to distinguish pseudo-achlorhydria from true achlorhydria, and pseudohypochlorhydria from true hypochlorhydria. This distinction rarely will be of clinical importance.

THE EFFECT OF GASTRO-ENTEROSTOMY OR RESECTION OF THE STOMACH

Duodenal or jejunal regurgitation plays an important part in reduction of acidity after gastro-enterostomy or resection of the stomach. Indeed, it may play the most important part except in those instances in which a portion of the acid-secreting region has been resected; low or normal acidity may be masked by the neutralizing influence of the regurgitated duodenal or jejunal content. After gastro-enterostomy or resection of the stomach the increased concentration of hydrochloric acid, following administration of histamine, should often disclose acidity when the Ewald meal does not. The rise in concentration of total chloride and the fall in concentration of total base, associated with increasing free acidity, have usually persisted after resection of the stomach or gastro-enterostomy. The concentration of total chloride and of free acid postoperatively has been lower, and the concentration of base higher, whenever bile has been found in the secretion from such stomachs. In the absence of regurgitation of bile, the degree of free acidity has not been materially affected, even when approximately half of the stomach has been resected (chart 6). This would seem to indicate that the secretory capacity has not been reduced because of elimination of the hormonal or humoral influence of the antral portion of the stomach. Priestley[8] has shown by similar procedures that, in the dog, removal of the antral portion of the stomach does not influence the concentration of free acid obtained from the fundic portion.

In only 20 per cent of the cases so far studied, in which the stomach has been resected, has anacidity been present. With the Ewald meal, this percentage would probably be higher. A few of the patients with anacidity were in poor condition physically, and the return of health may witness a return of secretion of free hydrochloric acid.

SUMMARY

In our experience, histamine is of value in distinguishing true from false achylia. However, histamine failed to cause a secretion of free acid in one case in which the Ewald meal did cause such secretion; it produced secretion of free hydrochloric acid of a concentration less than that evoked by the Ewald meal in two other cases, and it produced concentration only equal to or within 10 points of that evoked by the Ewald stimulus in fourteen cases. Gaither[9] has had the same experience, using the Ewald and alcohol meals and histamine.

As Henning[10] has stated, the histamine test may distinguish the more serious forms of secretory disturbance from those of a transitory nature, but it does

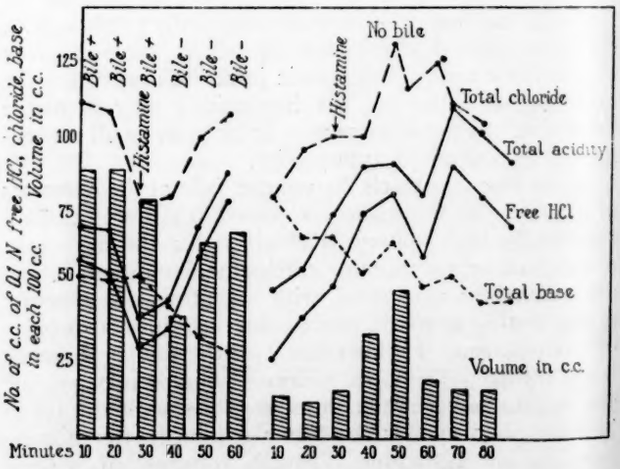

Chart 6.—Gastric secretion following administration of histamine, before and after partial gastrectomy (posterior Polya) in a case in which there were gastric and duodenal ulcers.

7. Medes, Grace; and Wright, C. B.: Studies on Duodenal Regurgitation: I. J. Clin. Investigation **6**: 403-423 (Dec.) 1928.

8. Priestley, J. T.: The Part Played by the Pyloric Mucosa in Gastric Acidity, unpublished data.

9. Gaither, E. H.: Diagnostic Value of Secretory Function in Gastric Disease: Various Methods Studied and Compared, unpublished data.

10. Henning, N.: Neuere Ergebnisse in der Diagnostik und Therapie der Magenkrankheiten, Med. Klin. **8**: 269-273 (Feb. 20) 1931.

not always give conclusive information as to the underlying anatomic lesion or the prognosis. He cited cases in which repeated gastric analysis with caffeine test meals gave evidence of normal gastric secretion in cases in which secretion had not followed previous administration of histamine. It would appear that histamine does not always evoke a maximal response and that the constancy of the response can be questioned.

In our experience, it is not apparent that the response of gastric secretion to histamine is of greater value than the response to the Ewald meal in the differential diagnosis of peptic ulcer and gastric carcinoma. In cases in which reduced concentration of free acid and reduced volume have diagnostic significance, as in gastric carcinomas, the Ewald meal gives information which compares favorably with that obtained after the use of histamine. Also, we have encountered cases of gastric carcinoma in which the concentration of free acid and the volume have been almost as great as those obtained in cases of duodenal ulcer, contrary to the experience of Bloomfield and Polland.

So far as the volume of gastric secretion is concerned, there appears to be a significant correlation between volume and free acidity; on the other hand, the volume of secretion, as aspirated, varies widely in all types of lesions studied. Its diagnostic significance is of such limited value and the possible errors in estimation are so great that it does not seem to add much information of diagnostic value.

There is such a high correlation between the highest concentration of total chloride and of free acid, following stimulation by histamine, that determinations of total chloride following administration of histamine offer little extra information concerning the secretory activity of the stomach and do not add sufficiently to the practical value of histamine as a test of secretory capacity to warrant the estimation of concentration of chloride.

The advantages of the stimulus of histamine over the Ewald meal are not great enough to warrant the adoption of the fractional method with stimulation by histamine as a routine.

The value of histamine in the study of chemical values after resection of the stomach, or gastroenterostomy, lies in disclosing free acidity, masked by the neutralizing influence of the base in the regurgitated duodenal or jejunal juice. Additional evidence of the unimportance of the humoral or hormonal influence of the antral portion of the stomach in maintaining the secretory capacity of the stomach is mentioned briefly.

ABSTRACT OF DISCUSSION

DR. ERNEST H. GAITHER, Baltimore: During the past year, I have been engaged in research regarding the diagnostic value of secretory function in gastric disease, and I undertook the study of the various methods most frequently employed—that is to say, the Ewald, alcohol and histamine tests—by the fractional method. The results of this investigation were presented some weeks ago at the annual meeting of the American Gastro-Enterological Association; in this study a comparison was made between the acidities obtained in 100 cases comprising the following pathologic entities: achylia gastrica, adhesions (postoperative; plastic gastric operations), colitis, gastric neurosis, hepatobiliary disorders (cholecystitis; cholelithiasis), ptosis and atony, and peptic ulcer. I shall quote a few of the conclusions: "The claim that histamine is vastly superior to the Ewald meal as a stimulant of acid secretion of the gastric glands has been disproved." "It would really appear that the application of bread and water as a test of gastric gland secretion is more physiologic than the subcutaneous application of the foreign body histamine, and that it presents a result more in keeping with normal bodily economy." And here I may present the incontrovertible fact that nature never depends on histamine injections to bring about a normal response of the gastric secretory gland. "Histamine does in a number of cases offer an advantage in establishing the fact that the glands do possess the power of acid secretion when after the Ewald or alcohol test an achylia would seem to be present." These conclusions show that the authors and I are in complete agreement on the point stressed by the former: "The only possible value of histamine seems to be in the differentiation of true from apparent anacidity and hypo-acidity, but even here it is not infallible."

DR. MARTIN G. VORHAUS, New York: Medical literature is full of instances in which creditable research has fallen into disrepute through misapplication at the hands of overenthusiastic advocates. When the late Dr. Gompertz and I first announced the value of histamine as a stimulant of the hydrochloric acid secretion of the stomach, we were quite cautious in our claims. Our original conclusions stated that its value lay in a differential test between pseudochlorhydria and true achlorhydria. Since then, there have been many reports on its value as a routine method of gastric analysis. The paper which has just been read should go far in negating these unwarranted claims. The hydrochloric acid response to histamine has been of considerable aid in the inspired investigations of Minot, Castle and their co-workers on pernicious anemia. Recently, a case has been reported in which, during a remission in the course of pernicious anemia, the histamine response gave almost a normal acid curve in what had been until then a totally achlorhydric stomach. In addition to the clinical evidence, there is now on record carefully checked experimental evidence to show that histamine in all probability stimulates only the oxyntic or acid-producing cells. The reports from Babkin's laboratory and the work of Gilman and Cowgill confirm experimentally our original observations. In our early work on histamine, we soon noted that, contrary to the fairly regular acid curve following histamine injection, there was no regularity of peptic activity, and in two of our reported cases we demonstrated a slight acid response without at any time being able to demonstrate peptic activity. It is apparent that the gastric secretory response following the injection of histamine is not a criterion of the secretory capacity of the entire gastric mucosa. The value of the histamine test lies in the high degree of accuracy with which it differentiates the pseudochlorhydria from the true achlorhydria.

DR. A. C. IVY, Chicago: The histamine test is the best method for differentiating between what I call relative and absolute achylia. If the gastric glands do not respond to 1 or 1.5 mg. of histamine in the form of the acid phosphate, one is assured that the patient has an absolute achylia, but from this condition through the various degrees of hyposecretion one finds all the variations in the histamine response that one finds in the response of normal individuals to an Ewald meal or any other kind of meal. Dr. Gaither has said that histamine is a foreign body, a foreign agent. I have taken that position for many years, but recently discoveries have been made which have caused me to take the position that histamine is gastrin. My associates and I have been successful recently in isolating the active principle of acid extracts of the pyloric mucosa in the form of histamine sulphate. From the sulphate we prepared the picrate and it had the same melting point as histamine picrate. We have other evidence which causes us to state that histamine is what has been called gastrin; and if histamine is not the gastric hormone, either there is no gastric hormone or no one has ever isolated it or extracted it from gastric mucosa. We have yet to perform vividialysis experiments, and if we obtain histamine in our dialysates from circulating blood, that will mean that histamine is the gastric hormone. On previous occasions I have shown with Dr. Javois that histamine may possibly be the gastric hormone because it can be injected at a rate of 0.002 mg. per kilogram per minute without causing a change in blood pressure or a peripheral dilatation, but still causing a secretion of gastric juice. These observations, which are recent (within the last six months, although we have been working on the problem for the last four years), have led me to the hypothesis that histamine is a general synergistic hormone

in digestion. It facilitates not only the other processes concerned in the formation of gastric juice but also the formation of pancreatic juice and increases the formation of succus entericus. It increases motility. None of these observations have been correlated before. I have been interested in the gastric hormone and I didn't want it to be histamine because that was a vasodilating substance, but such a substance in physiologic amounts will obviously lead to an improvement in digestive processes.

DR. IRVING GRAY, Brooklyn: The comparative changes in gastric acidity and urinary reaction after the injection of histamine were noted by Dr. Matzner and myself in a study of twenty-five patients. Approximately 50 per cent of the patients who had free hydrochloric acid in the gastric extractions after the injection of histamine had a definite urinary alkaline tide. If an indirect study of gastric acidity is to be made and the estimation of urinary acidity (alkaline tide) is the test decided on, histamine cannot be used as the gastric stimulant. The use of steero-bouillon cubes in warm water will produce a definite postprandial alkaline tide in about 90 per cent of the patients. We are using histamine in those cases only when it is of paramount importance to determine whether or not there is a true or false achlorhydria.

DR. FRANK SMITHIES, Chicago: At what time was it shown that an Ewald meal excited acid secretion or resulted in achylia? Clinically, this is an important factor with or without the use of histamine. Some individuals have a rapid secretion of acid after meal ingestion, whereas others have marked delay: the acid secretion may not take place until after the first hour or even longer. Yet such patients do not have achylia, as so often they are reported, when a time interval of only an hour is considered as a suitable period of observation. I have not used the Ewald meal or its modification, the alcohol meal, or any of the mixtures, for more than five years. No one can say that the Ewald meal gives the individual stomach a physiologic test, with respect either to secretion or to motility. With an Ewald type meal, one exhibits to the stomach a carbohydrate meal of little bulk load, whereas the function of the stomach is that of the initiation of digestion of proteins. Yet one is endeavoring to determine the secretory response of the stomach by a wholly physiologically incorrect stimulus. The evidence obtained is largely artificial and represents only what secretion and motility a carbohydrate meal excites at a particular time in the stomach of an individual patient. With an Ewald type meal, the volume load most certainly is not adequate. Such a meal begins to be discharged from the stomach sometimes before the patient finishes eating; consequently, it does not give a degree of work adequate to enable one to judge what a stomach is capable of doing in circumstances of normal food load. To meet these obvious defects in test meal studies I have persisted in carrying out my secretory and motor observations on full mixed meals of the patient's own choosing on proved empty stomachs and allowing an interval of from three to five hours as a digestive phase; during that period the acidity, chlorides and residue are determined by specimens withdrawn at intervals of fifteen minutes. When one follows this physiologic procedure one is quite surprised to discover that many individuals who previously had extremely suspicious acid secretion, low or high, rapidly resolve themselves into patients who return normal secretory and motor curves.

DR. A. F. R. ANDRESEN, Brooklyn: The paper and the first discussion have naturally led to a consideration of whether gastric analysis is of any value in diagnosis, and some of the speakers have implied that those who have been in favor of using histamine have had a wrong idea of its importance. If they had read the context of the articles of both Dr. Gompertz and Dr. Vorhaus and of my article they would realize that we place little stress on the curves of acid secretion following the histamine injection. We call particular attention to the value of the other things we discover by means of gastric analysis. The value of the study of motility and admixtures, as well as of the secretory curves, was gone into in these papers. We feel that the acid secretion following the injection of histamine or any other stimulus, whether a full meal, an Ewald meal or alcohol, is simply a physiologic response of the gastric glands to a stimulus and any changes from the normal indicate disease. The only real value in a study of the acid secretion lies in determining whether the stomach is secreting or not. Histamine gives definite information as to whether the stomach can secrete hydrochloric acid; it is harmless to use, and Dr. Ivy has told us that it is practically identical with the gastric hormone and therefore a "physiologic substance." I do not consider it logical, therefore, first to use the unphysiologic Ewald meal as a routine in all gastro-intestinal studies, and, on failing to obtain hydrochloric acid secretion in this manner, to follow with a histamine injection. It means two gastric analyses instead of one and overemphasizes the value of acid determinations.

DR. M. W. COMFORT, Rochester, Minn.: Reduction in acidity follows the usual operative procedure; however, the reduction in acidity is usually not the result of any change in the secretory capacity of the stomach but of such factors as duodenal or jejunal regurgitation, factors on which not enough emphasis has been placed. With regard to the duration of the meals about which Dr. Smithies has asked, the Ewald meal lasted an hour and the histamine test from thirty to seventy minutes after the injection of histamine. With any meal, if the little flare up of acidity which sometimes appears in incomplete anacidity is to be caught, the observations must be prolonged. I agree with Dr. Andresen that there are no objections to the use of histamine in place of the Ewald meal if the limitations of histamine are recognized. However, except in the pseudo-anacidities, it does not seem to give worth while information of diagnostic value which the Ewald meal does not give.

STREPTOCOCCAL AGGLUTININS IN RHEUMATOID ARTHRITIS

PRELIMINARY REPORT *

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AND
WENDELL J. STAINSBY, M.D.
NEW YORK

In reviewing the literature dealing with the bacteriology of rheumatoid arthritis,[1] one is impressed by the diversity of the results obtained. While the relation of focal infection to rheumatoid arthritis is generally recognized, there is doubt in the minds of many as to whether the joint manifestations are actually metastatic infections or whether they are merely an expression of some toxic or allergic influence. In respect to the bacteriologic agent responsible for the disease, the majority of investigators look on the streptococcus as the exciting cause, but there is considerable disagreement as to which type is responsible. Some workers consider rheumatoid arthritis a *Streptococcus hemolyticus* infection while others look on the indifferent or green producing streptococcus as the causative agent. Still other investigators believe that the staphylococcus, the diphtheroid bacillus or other micro-organisms as well as the streptococcus can produce deforming arthritis. Although a number of workers have found streptococci in the blood and joints of patients with rheumatoid arthritis, little effort has been made to study either the biologic relationship of the streptococci isolated or the immune bodies in the patients' serums.

In a previous paper, in collaboration with Cecil, we [2] have reported the isolation of streptococci from the

* This investigation was supported in part by the Committee for the Encouragement of Medical Research.

* From the Second (Cornell) Medical Division and the Pathological Laboratories of Bellevue Hospital, the Cornell Clinic, and the Department of Medicine, Cornell University Medical College.

* Since this article was submitted for publication in December, 1930, the details of our agglutination technic have appeared in print: Nicholls, Edith E., and Stainsby, W. J.: J. Clin. Investigation **10**: 323 (June) 1931.

1. Rheumatoid arthritis is considered by us as synonymous with chronic infectious or atrophic arthritis.

2. Cecil, R. L.; Nicholls, Edith E., and Stainsby, W. J.: Bacteriology of Blood and Joints in Chronic Infectious Arthritis, Arch. Int. Med. **43**: 571 (May) 1929.

blood and from the joints of a high percentage of patients with rheumatoid arthritis. Of the streptococcal strains thus recovered, 83.3 per cent were culturally identical and were designated as "typical strain" streptococci; on laboratory mediums they presented the appearance of attenuated hemolytic streptococci.

Much to our satisfaction and somewhat to our surprise, the "typical" cultures were cross agglutinated by homologous immune rabbit serums. These observations led to a search for specific streptococcal agglutinins in the serums of patients with chronic infectious arthritis and the present communication gives the results obtained in this investigation.

Agglutination reactions were carried out with the serums of 110 patients with rheumatoid arthritis against "typical strain" streptococci. Of the 110 serums examined, 103, or 93.6 per cent, showed definite agglutination to a titer of 1:640 or higher, frequently as high as 1:5,120. Control agglutinations were carried out in the same way with the serums of a large number of normal individuals and patients with other diseases. Patients with rheumatic fever, osteo-arthritis,[3] and gonococcal arthritis failed to give positive agglutination reactions to a titer above 1:160; those with acute tonsillitis and acute bronchitis occasionally gave reactions as high as 1:640. In view of the fact that infections of the upper respiratory tract are frequently associated with rheumatoid arthritis, these observations are particularly interesting. Agglutination reactions with the serums of patients having various other febrile and nonfebrile diseases practically never gave titers above 1:320 with the "typical strain" streptococci.

In order to check the specificity of the streptococcal agglutinins, similar tests were performed with the serums of patients with rheumatoid arthritis against various other pathogenic organisms, such as pneumococcus types 1, 2 and 3, *Staphylococcus albus* and *aureus, Bacillus coli,* and *Streptococcus viridans,* as well as hemolytic streptococci from various other sources. A hemolytic streptococcus from a case of scarlet fever and a hemolytic streptococcus from a case of erysipelas gave agglutination reactions comparable to those obtained with "typical strain" streptococci, although the end reactions were at lower dilutions. With two exceptions, hemolytic streptococci recovered from the throats of normal individuals and of patients with various diseases gave negative agglutination reactions. With one arthritic serum, these exceptional strains gave agglutination reactions at a titer of 1:640.

The almost constant presence of these specific streptococcal agglutinins in the serums of patients with rheumatoid arthritis can be made of considerable practical value in clinical medicine, especially when used in conjunction with the sedimentation test.[4] The agglutination test for rheumatoid arthritis is quite as specific as the Widal test for typhoid. Indeed, in our experience the agglutinins have run to a much higher titer in the former than in the latter disease. These tests are carried out as a routine on every patient admitted to the arthritis department of the Cornell Clinic and are repeated at intervals of six weeks thereafter. The agglutination reaction has been found a valuable aid in differentiating rheumatoid arthritis from chronic gout, gonococcal arthritis, osteo-arthritis and other joint diseases. The sedimentation reaction offers a means of measuring the activity of the disease when the patient first presents himself for examination. By taking the test at regular intervals, an estimate of the value of the therapeutic measures given can be obtained.

3. Osteo-arthritis is considered a synonym for degenerative or hypertrophic arthritis.

4. Race, Joseph: Proc. Roy. Soc. Med. **22**: 15 (March) 1929. Dawson, M. H.; Sia, R. H. P., and Boets, R. H.: Proc. Soc. Exper. Biol. & Med. **27**: 657 (April) 1930. Rourke, M. Dorothy; and Ernstene, A. C.: J. Clin. Investigation **8**: 545 (June) 1930. Dawson, M. H.; Sia, R. H. P., and Boots, R. H.: J. Lab. & Clin. Med. **15**: 1065 (Aug.) 1930.

CONCLUSIONS

1. The serums of patients with rheumatoid arthritis give a strong specific agglutination reaction with "typical strain" streptococci recoverable from the blood and joints of patients with rheumatoid arthritis. Such a reaction suggests that this type of hemolytic streptococcus is of etiologic importance in the disease.

2. A close antigenic relationship between "typical strain" streptococci and the hemolytic streptococci from scarlet fever and erysipelas is established.

3. Rheumatoid arthritis can be differentiated from osteo-arthritis, chronic gout, gonococcal arthritis and other joint diseases by the agglutination reaction.

4. The agglutination reaction, when supplemented by the sedimentation test, not only offers a valuable aid in differential diagnosis of arthritic conditions but also affords an estimate of the activity of the disease and the progress of the patient.

Clinical Notes, Suggestions and New Instruments

THE DANGER OF DILATING URETHRAL STRICTURES WITH OIL: REPORT OF TWO CASES OF FATAL OIL EMBOLISM *

E. A. PATTERSON, M.D., ROCHESTER, N. Y.

The introduction of oil under pressure into the urethra as a means of lubrication and dilation of a strictured area has been mentioned by a number of writers. The method as outlined by Thompson,[1] Cabot,[2] Hyman[3] and Crance[4] has been used by many urologists as an aid to the introduction of the filiform in the more difficult types of urethral strictures. In these cases the forcing of oil beyond the area of stricture often results in sufficient dilatation and lubrication to enable one to pass a filiform where this has previously been impossible. I have resorted to this method numerous times with a fair measure of success, and in certain cases in which the patient has been able to void I have been content to pass oil beyond the area of stricture on several successive days before making a second attempt at instrumentation.

It is my purpose in this article to call attention to the danger of forcing oil through such a strictured area and to present two cases of fatal oil embolism resulting from this procedure. I am indebted to Dr. W. W. Scott for aid in the preparation and presentation of this report.

REPORT OF CASES

CASE 1.—*History.*—M. D., aged 70, July 20, 1929, complained of occasional attacks of unconsciousness, cough, pain in the chest, and chilly sensations. For eighteen years he had experienced "shaking spells," during which he had great difficulty in using his arms. These attacks occurred every three or four months; occasionally he lost consciousness. For five or six years there had been a mild intermittent cough, which was accompanied by pain in the chest. For three or four days prior to admission, he coughed up bloody sputum and experienced chilly sensations.

* From the Department of Surgery, University of Rochester School of Medicine.

1. Thompson, Henry: Stricture of the Urethra and Urinary Fistulae, Philadelphia, Henry C. Lea, 1869.

2. Cabot, Hugh: Modern Urology, Philadelphia, Lea & Febiger, 1924.

3. Hyman, A.: Treatment of Urethral Stricture, Am. J. Surg. **39**: 152 (June) 1925.

4. Crance, A. M.: Approach to Acute Urethral Stricture, Introducing a Different Method of Lubrication, Am. J. Surg. **4**: 423 (April) 1928.

The patient had contracted gonorrhea in early adult life. He had had acute urinary retention seven years before admission and stated that a perineal operation was performed at that time. Following the operation the perineal fistula did not close and an additional fistula developed in the scrotum.

Physical Examination.—The temperature was 38 C. (100.4 F.); pulse, 94, and respirations, 26. There was evidence of a chronic respiratory infection, general arteriosclerosis and senility. There were a perineal scar in the median line and two urinary fistulas; one of the latter was located in the scar and the other in the right side of the scrotum.

Examination of the blood showed hemoglobin to be 85 per cent; white blood cells, 28,000; the Wassermann reaction, negative. Nonprotein nitrogen was 50 mg. per hundred cubic centimeters.

Examination of the urine revealed albumin +, pus + and red blood cells +.

Treatment and Result.—The respiratory infection cleared with rest in bed. When an attempt was made to pass an instrument into the bladder, an obstruction beyond which a filiform would not pass was met in the bulbous urethra. However, it was possible to introduce a filiform into the bladder through each of the fistulas. Repeated attempts to pass a filiform by the urethra were unsuccessful and a fair amount of bleeding resulted. With the hope of dilating the stricture somewhat, liquid petrolatum was forced into the urethra by means of a Chetwood syringe.

Within two minutes the patient became dyspneic and cyanotic; he tried to struggle to a sitting posture, and it was noted that he could not use his left arm and leg. The reflexes were absent at the knee and elbow on this side. The patient collapsed and failed to respond to the usual supportive measures. Death occurred within fifteen minutes.

Postmortem Examination.—Necropsy showed old cerebral infarcts, encephalomalacia, urethral stricture, perineal and scrotal fistulas, chronic cystitis, right hydro-ureter, pulmonary edema, emphysema, renal adenomas, phleboliths in the spleen, and a chronic fibrous pleuritis.

The history of attacks of unconsciousness, together with the sudden onset of hemiplegia, led me to attribute death to cerebral hemorrhage, and no special examination for oil embolism was requested. This case is presented because of the clinical similarity to case 2 and because of its influence on the examination of the tissues in the latter.

CASE 2.—*History.*—R. B., aged 61, May 25, 1930, complained of difficult urination. Fifteen years before admission he had noticed that he had a great deal of difficulty in voiding. A diagnosis of urethral stricture was made by his physician and the stricture was dilated. Following this he had no further difficulty until two or three years before admission, at which time he noticed that the urinary stream was becoming smaller. Three days before admission acute retention occurred, but within a short time he was able to void small amounts at frequent intervals. During the first two days of this attack, hematuria was present. On the day of admission his physician made an unsuccessful attempt at catheterization.

The patient had had a gonorrheal urethritis in early adult life.

Physical Examination.—The temperature was 37 C. (98.6 F.); pulse, 80, and respirations, 20. The bladder was percussed and palpated 4 cm. above the symphysis pubis. A markedly indurated area could be palpated along the course of the urethra in the region of the bulb.

Examination of the blood showed hemoglobin to be 95 per cent; white blood cells, 9,200; the Wassermann reaction, negative; nonprotein nitrogen, 100 mg. per hundred cubic centimeters.

Examination of the urine revealed: pus + + + +; red blood cells +.

Treatment and Result.—Repeated attempts to pass a filiform beyond the strictured area in the bulbous urethra were unsuccessful and were accompanied by bleeding. By means of a Chetwood syringe, liquid petrolatum was forced beyond the strictured area. Half an hour later the patient had a chill, the temperature rising to 39.5 C. (103.1 F.), the pulse to 135, and the respirations to 22. A blood culture taken at the time of the chill was later reported as normal. That night the temperature was 37.8 C. (100 F.), the pulse 93, and the respirations 21.

The following morning the patient stated that he was voiding much more freely. Liquid petrolatum was again passed through the strictured area, very little pressure being necessary, and was heard to enter the bladder. Immediately after the injection of oil the patient became dyspneic and cyanotic and was found to have developed a left hemiplegia. The reflexes could not be elicited at the knee or elbow on the left side. The temperature rose to 39.2 C. (102.5 F.), the pulse to 142, and the respirations to 27. Death occurred seven hours after the injection of the oil.

Postmortem Examination.—Since this accident was the second following the dilation of a stricture with oil, it was felt that the oil itself was responsible for the sudden death. Accordingly, a request was made for the examination of the tissues for oil embolism. Sudan III was used as the tissue stain.

Droplets of oil were demonstrated in the capillaries of both lungs and kidneys. The oil was diffusely distributed throughout the lungs and found in relatively large amounts. The quantity of oil in the kidneys was considerably less. In determining whether or not the oil seen in the sections of these tissues was in reality embolic, the points outlined by Lehman and Moore [5] were carefully considered. The material taking the stain was so great in amount and was distributed so widely throughout both lungs that it certainly was not the fat normally seen in the epithelial cells of the bronchi or in the peribronchial tissues. The droplets could be demonstrated beyond any doubt in the capillaries of both the lungs and the kidneys. An attempt was made to find oil droplets in the capillaries of the brain but this was unsuccessful.

Additional observations at the postmortem examination included stricture of the urethra, hypertrophy of the bladder, chronic cystitis, scarring and contracture of both kidneys, dependent edema and congestion of both lungs, and a left diaphragmatic hernia.

Although it was not possible to demonstrate oil embolism in the brain of this patient, no other cause for the sudden onset of hemiplegia could be shown. The clinical similarity of this case to case 1 is apparent and will be discussed further, but it may be noted here that in neither case was any cause found for the symptoms and signs of cerebral accident.

COMMENT

These two cases have several points in common: Both patients became dyspneic and cyanotic immediately after the oil injection, both developed a left hemiplegia, and in both cases death occurred. In fact, except that patient 2 lived seven hours longer after the initial reaction than did patient 1, the clinical courses were identical. There can be no doubt that the same pathologic process, namely, oil embolism, was responsible for death in the two cases.

The fact that oil embolism can be shown to be present in the kidneys of one of these patients proves that some oil passed through the lungs. The failure to show any other reason for the sudden onset of hemiplegia is presumptive evidence that cerebral oil embolism occurred, and the fact that oil injection caused hemiplegia without demonstrable cause in another patient makes the assumption of cerebral oil embolism inevitable.

That very rapid absorption takes place from the urethra has long been known, and practically every urologist has seen alarming reactions follow the introduction of anesthetizing substances into the urethra, recognizing the fact that these reactions occur more frequently in those cases in which there has been urethral bleeding. The work of Schönfeld and Müller [6] illustrates this point in that it demonstrates that absorption from the urethra is all the more rapid if the mucous membrane is irritated before the instillation of a drug. The numerous cases of blood stream infection after urethral instrumentation of all kinds and even on the occasion of first voiding after prostatectomy, as reported by Scott,[7] serve further to bring this out.

5. Lehman, E. P., and Moore, R. M.: Fat Embolism, Including Experimental Production Without Trauma, Arch. Surg. **14**: 621 (March) 1927.

6. Schönfeld, W., and Müller, W. G.: Clinical and Experimental Observations on Resorption from Urethra and Bladder in Man, München. med. Wchnschr. **72**: 291 (Feb. 20) 1925; abstr. J. A. M. A. **84**: 1312 (April 25) 1925.

7. Scott, W. W.: Blood Stream Infections in Urology, J. Urol. **21**: 527 (May) 1929.

I have not been able to find any reference to the possibility of oil entering the blood stream from the urethra except for a brief statement by Thompson[8] that the dilating of a stricture with oil "is not to be tried when there has been much bleeding or the tissues have been torn." It is interesting to note that on outlining the method nineteen years previously he issued no such warning, so it may be assumed that some accident occurred during this period; the nature of such an accident can only be surmised.

In the cases presented, 20 cc. of liquid petrolatum was used for each injection; of this amount a large proportion entered the bladder and a great deal was expelled from the urethra on withdrawal of the syringe. It is impossible to estimate the amount of oil entering the blood stream in each case, but it is felt that it was but a small fraction of 20 cc. It is known from the report of Fibiger[9] that the injection of 50 cc. of oil intravenously is sufficient to cause death in the human being, and Ribbert[10] has estimated the amount of fat in severe cases of fat embolism at from 15 to 20 cc. It would seem that the amount of oil, given intravenously, which is sufficient to cause death does not depend directly on the amount of oil given but depends on the amount of oil passing through the lungs and its distribution in relation to the vital centers. For this reason a very small fraction of the previously estimated fatal dosage may be sufficient to cause death.

In the past the use of oil under pressure in the urethra for dilation of strictures has been resorted to only after the customary attempts at instrumentation have failed. It seems much safer to discard the method entirely than to attempt to judge its safety in any given case by the amount of trauma to which that particular urethra has been subjected, since such a nicety of judgment is impossible and any attempt to attain it can lead only to eventual disaster.

CONCLUSION

Oil embolism in amounts sufficient to cause death may result from the introduction of oil under pressure into the urethra in cases of urethral stricture.

8. Thompson, Henry: Diseases of the Urinary Organs, London, J. and A. Churchill, 1888.
9. Fibiger, J., cited by Gröndahl: Deutsche Ztschr. f. Chir. **111**: 56, 1911.
10. Ribbert, H.: Zur Fettembolie, Deutsch med. Wchnschr. **26**: 419, 1900.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

SANDOPTAL.—Isobutylallyl barbituric acid.—Isobutylallyl malonylurea.—2,4,6,-trioxy-5-isobutylallyl pyrimidin.—*iso*-C_4H_9-(C_3H_5) C CONH CONH CO. Sandoptal differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced, one by an *iso*-butyl group and the other by an allyl group.

Actions and Uses.—The same as those of barbital and its therapeutically useful derivatives.

Dosage.—For mild insomnia, 0.2 Gm. (3 grains); for use in obstinate cases of insomnia, 0.4 to 0.8 Gm. (6 to 12 grains).

Manufactured by Sandoz Chemical Works, Basle, Switzerland (Sandoz Chemical Works, Inc., New York, N. Y., distributor). No U. S. patent. U. S. trademark applied for.

Tablets Sandoptal, 0.2 Gm.

Sandoptal occurs as a white, crystalline, odorless powder, with a slightly bitter taste; completely soluble in ethyl alcohol, acetone, chloroform, ether, ethyl acetate and glacial acetic acid; slightly soluble in cold water; sparingly soluble in boiling water and petroleum ether; insoluble in the paraffin hydrocarbons. A saturated aqueous solution is acid to litmus paper. It melts at 138-139 C. It is stable in air.

Place about 0.3 Gm. of sandoptal in a 25 cc. glass stoppered cylinder, add a mixture of 1 cc. normal sodium hydroxide solution and 5 cc. of water, shake the contents for one minute, filter through paper and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in 10 cc. of ammonia water; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in 5 cc. of ammonia water. Boil about 0.5 Gm. of sandoptal with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with the evolution of strongly alkaline vapors. Place about 1 Gm. of sandoptal in a 25 cc. glass stoppered cylinder, add 10 cc. of water, shake for one minute, filter through paper and divide into two portions; to one portion add 0.5 cc. of a saturated bromine water; an immediate discoloration occurs; to the other portion add 0.1 cc. of tenth-normal potassium permanganate solution: a yellow color appears immediately.

Dissolve about 0.1 Gm. of sandoptal in 1 cc. of sulphuric acid: the solution is colorless (*readily carbonizable substances*). Boil about 0.5 Gm. of sandoptal with 50 cc. of water for two minutes: no odor develops; cool and filter: separate portions of 10 cc. each of the filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution (*chloride*); no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution (*sulphate*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Incinerate about 1 Gm. of sandoptal, accurately weighed: the residue does not exceed 0.1 per cent. Dissolve about 0.5 Gm. of sandoptal, accurately weighed, in 25 cc. of previously neutralized alcohol; dilute with an equal volume of water and titrate with tenth-normal sodium hydroxide solution, using thymol-phthalein as an indicator: the amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent nor more than 101.5 per cent of *iso*butylallyl barbituric acid.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1931, p. 383).

E. R. Squibb & Sons, New York.

Diphtheria Toxin for the Schick Test, Ready to Use without Dilution-Squibb.—A diphtheria toxin made by growing diphtheria bacilli in broth, aging, and diluting with peptone solution according to W. E. Bunney (*J. Immunol.* **20**: 71, 1931). The product is ready for use, no diluent being required. The diluted toxin is of such strength that 0.1 cc. (one dose) given intracutaneously constitutes one-fiftieth minimum lethal dose for a guinea-pig of 250 Gm. weight. It is marketed in packages of 1 cc. containing sufficient for ten tests and in packages of 10 cc. containing sufficient for 100 tests.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

SOLUTION NORMET NOT ACCEPTABLE FOR N. N. R.

Solution Normet Medical and Solution Normet Surgical are marketed in the United States by the High Chemical Co., Philadelphia. According to the advertising circular the "Medical" differs from the "Surgical" solution in that it contains less manganese. No quantitative statement of composition is given in the available advertising or on the trade package examined. However, in an article, "Le traitement des hemorrhagies graves et des états de shock chez l'homme par le sérum citrate de Normet" (*Bull. et mém. Soc. nat. de chirurgie* **55**:848, 1929) M. Normet gives the formula of the "serum" used as follows (in translation): sodium citrate, 22 Gm.; calcium citrate, 9.5 Gm.; magnesium citrate, 4.5 Gm.; iron and ammonium citrate, 1 Gm.; manganese citrate, 0.2 Gm., dissolved in 1,000 cc. of distilled water. The label on the trade package of Solution Normet Surgical directs that the contents of one ampule (20 cc.) be mixed with 1 quart of 0.7 per cent sodium chloride solution for injection. From this it follows that the solution to be injected contains only about 1 part of manganese citrate in 250,000; 1 part of sodium citrate in about 2,300; 1 part of calcium citrate in about 5,200; 1 part of magnesium citrate in about 11,000, and 1 part of iron and ammonium citrate in 50,000. Solution Normet Medical would, according to the advertising, contain less manganese citrate.

The available advertising consists of a folder and several form letters, the unctuous, go-getting tone of which is an affront to the intelligence of any but a gullible, non-reading physician who is looking for a miraculous shortcut to "results." The folder hails the solution as "A New Triumph," proclaiming its usefulness in a host of conditions: myocarditis, collapse, varices, hemorrhage, hemoptysis, hematemesis, pyocarditis, bronchopneumonia, influenza, measles, smallpox, anemia (all forms), hemophilia, purpura hemorrhagica, grave hemorrhage during the placental period, infections; for prevention of metritis, phlebitis and puerperal infections and to accelerate uterine involution, not to mention placenta accreta and increta, which is referred to as though it constituted the great triumph justifying the characterization. Another great "triumph" was in a case of "gastorrhagia"; one each in articular rheumatism, exhaust poisoning, fibroid toxicity and acute leukemia. No

name is given of the physician or surgeon who reported any of these cases, though the manufacturers offer to send the name on request.

Physicians and surgeons are delighted to report in the reputable medical and surgical journals their successes in treating extraordinarily difficult and dangerous cases; but one who has recently had occasion to examine a very considerable volume of medical literature did not encounter a single report by a physician or surgeon of a critical study of Normet's Solution. It is true that Northrup reported in the *Hahnemannian Monthly* (**66**:330 [May 31] 1931) the use of Normet's Solution in five cases, of which one proved fatal, but Northrup's report cannot be called a critical study. Northrup also presented a film (presumably supplied by the manufacturers, since they offer to show one closely similar) which shows a dog deprived of 80 per cent of its blood (or 90 per cent according to Northrup) which received an injection of Normet's Solution and then behaved much like a normal dog.

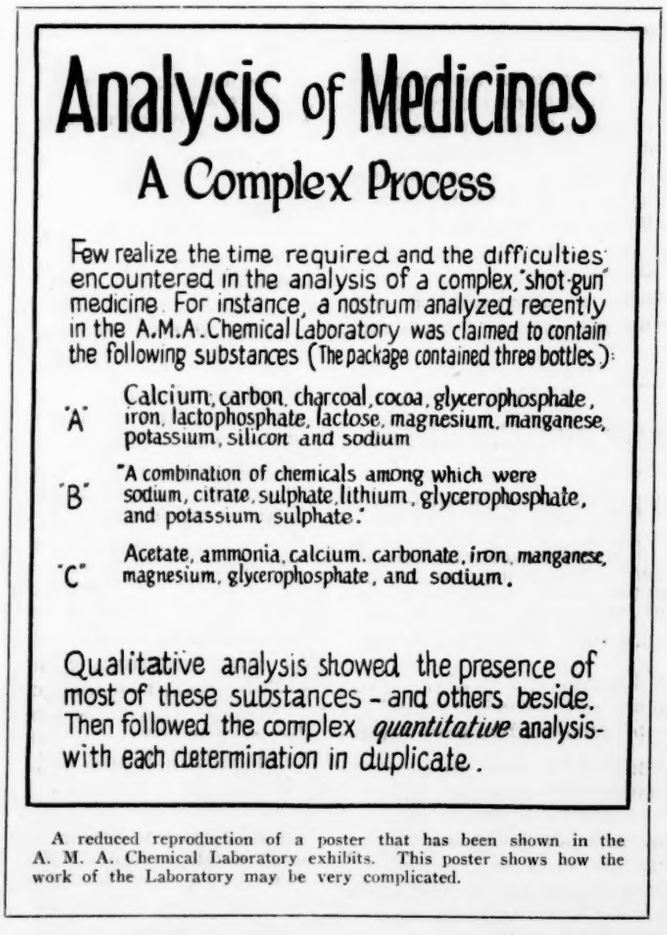
It is difficult for one who has seen nearly similar experiments to believe that the dog had been deprived of 90 per cent or even 80 per cent of its blood (and no statement is made concerning the actual amount of blood removed), for such dogs show an extreme degree of depression after saline infusions.

It is well known that sodium citrate injected intravenously shortens the coagulation time of the blood as observed by Richard Weil in 1915; but it is not effective by subcutaneous injection, though the manufacturers of Normet's Solution recommend the subcutaneous injection for slowly exuding postoperative hemorrhages.

According to "Useful Drugs" (ed. 8, 1930, p. 50) the intravenous injection of calcium salts depresses the nervous system; but it seems probable that an ordinary dose of Normet's Solution does not markedly influence the nervous system through the action of the calcium. The amounts of the citrates of magnesium, manganese and of iron and ammonium citrate are too small to have any appreciable influence. The only constituents of Normet's Solution that are mentioned in "Useful Drugs" are magnesium citrate, which is a laxative in doses of 350 cc. of the solution, representing about 5 Gm. of the oxide, and iron and ammonium citrate, of which the oral dose is about 4 grains, and which, like other preparations of iron, is used for the regeneration of the blood in anemia; but there is no such rapid action as it is claimed that Normet's Solution induces.

The available literature indicates that none of the constituents of Normet's Solution, nor all of them combined, are capable of exerting any extraordinary restorative value in any of the conditions enumerated; but it is true that the infusion of physiologic solution of sodium chloride alone often causes marked improvement after the loss of blood, though there is no striking difference between the death rate in dogs that have received physiologic solution of sodium chloride and those that have not, following severe hemorrhage.

The Council declared Normet's Solution unacceptable for New and Nonofficial Remedies because it is an unscientific mixture marketed with unwarranted therapeutic claims.


Analysis of Medicines
A Complex Process
Few realize the time required and the difficulties encountered in the analysis of a complex, "shot-gun" medicine. For instance, a nostrum analyzed recently in the A.M.A. Chemical Laboratory was claimed to contain the following substances (The package contained three bottles.):
"A" Calcium, carbon, charcoal, cocoa, glycerophosphate, iron, lactophosphate, lactose, magnesium, manganese, potassium, silicon and sodium
"B" "A combination of chemicals among which were sodium, citrate, sulphate, lithium, glycerophosphate, and potassium sulphate."
"C" Acetate, ammonia, calcium, carbonate, iron, manganese, magnesium, glycerophosphate, and sodium.
Qualitative analysis showed the presence of most of these substances - and others beside. Then followed the complex *quantitative* analysis - with each determination in duplicate.

A reduced reproduction of a poster that has been shown in the A. M. A. Chemical Laboratory exhibits. This poster shows how the work of the Laboratory may be very complicated.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

SIMILAC

(A Food for Infants — Derived from Modified Fresh Skim Cow's Milk [the Casein of Which is Rendered Soluble]; with the Addition of Milk Sugar, Salts, Milk-Fat, Olive Oil, Coconut Oil and Cod Liver Oil)

Manufacturer.—M & R Dietetic Laboratories, Inc., Columbus, Ohio.

Description.—A spray dried reconstructed diet for infants deprived of breast milk; containing sodium, potassium, and calcium caseinates, lactalbumin, milk sugar, salts, and animal and vegetable fats (butter fat, olive oil, coconut oil, cod liver oil).

Manufacture.—The milk used in the preparation of Similac is collected in accordance with the provisions of the sanitary code of the Columbus Board of Health. The milk fulfilling these requirements is skimmed by centrifugal method. The skimmed milk is treated with phosphoric acid or a soluble phosphate to precipitate calcium milk-salts. The liquid is brought to the desired degree of alkalinity by the addition of sodium hydroxide. The precipitate is removed by centrifugating, subsequent to which hydrochloric acid is added to neutralize the excess alkalinity. Lactose, milk-fat, cod liver oil, olive oil and coconut oil are added and the mixture is homogenized by forcing under high pressure through small apertures. The homogenized mixture is pasteurized and concentrated under reduced pressure. The concentrated liquid is spray dried by forcing under high pressure into a drying chamber containing hot air currents. The resulting dried powder settles on the floor of the chamber, is removed to packing machines, and is automatically packed in hermetically sealed tins in an atmosphere of nitrogen.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	3.0
Ash	3.2
Fat (Mojonnier method)	27.1
Protein (N × 6.38)	12.5
Lactose (by difference)	54.4
(Reliquefied—1 oz. Similac to 7.5 oz. water or 1 tablespoon of Similac to 2 oz. water.)	
Ash	0.4
Fat	3.4
Protein (N × 6.38)	1.5
Lactose	6.8
pH	6.8

Calories.— 5.12 per gram
145.4 per ounce

Micro-Organisms.—Each run of Similac is subjected to a routine bacteriologic examination. The company guarantees absence of green and brown colony forming bacteria and hemolytic organisms.

Claims of Manufacturer.—Similac is designed as a food for infants deprived of breast milk and may be fed either as a complement or as a supplement to breast milk or as a diet where breast milk is entirely absent. The normal dilution of Similac is 1 tablespoonful or measure of Similac powder to 2 ounces of water. It is not necessary to feed in this dilution only. Similac may be fed either in a more concentrated or in a diluted mixture according to the requirements of the individual infant. Accessory foods, such as orange juice, tomato juice and cod liver oil, are recommended in conjunction with the feeding of Similac.

The modification of the salts of skimmed milk used in the preparation and manufacture of Similac produces a change in the casein of milk which results in the Similac coagulating in a soft, fine, flocculent curd similar to the curd produced when breast milk comes in contact with the gastric juices, thereby enabling the utilization of all food elements contained in Similac.

SWIFT'S PURE TOMATO JUICE

Distributor.—Swift and Company, Packers, Chicago, Ill.

Description.—A pasteurized tomato juice, seasoned with salt.

Manufacture.—The tomatoes as received are washed in a continuous stream of fresh water, from which they are conveyed by rotating paddles to a spray washer, following which they pass through a second stream of water to conveyor belts for sorting and trimming. Only thoroughly matured sound red ripe tomatoes are selected for the tomato juice.

The juice is expressed from the preheated, cleaned tomatoes in an atmosphere of water vapor in a continuous press. Practically no air is incorporated in the juice in this operation. The expressed juice passes through a screen, is brought to a definite standard of consistency by removal of the suspended solids, and is pumped to the filling machines under conditions that exclude air in an atmosphere of water vapor. The cans are filled also by a procedure that avoids admixture with air and in a surrounding of water vapor. A definite quantity of table salt is automatically added to each can. The cans are sealed and pasteurized at a definite temperature for a sufficient time to insure the keeping qualities.

Laboratory supervision is maintained to insure the use of tomatoes of a proper grade, color and flavor, to control the viscosity of the final juice, and to supervise the processing.

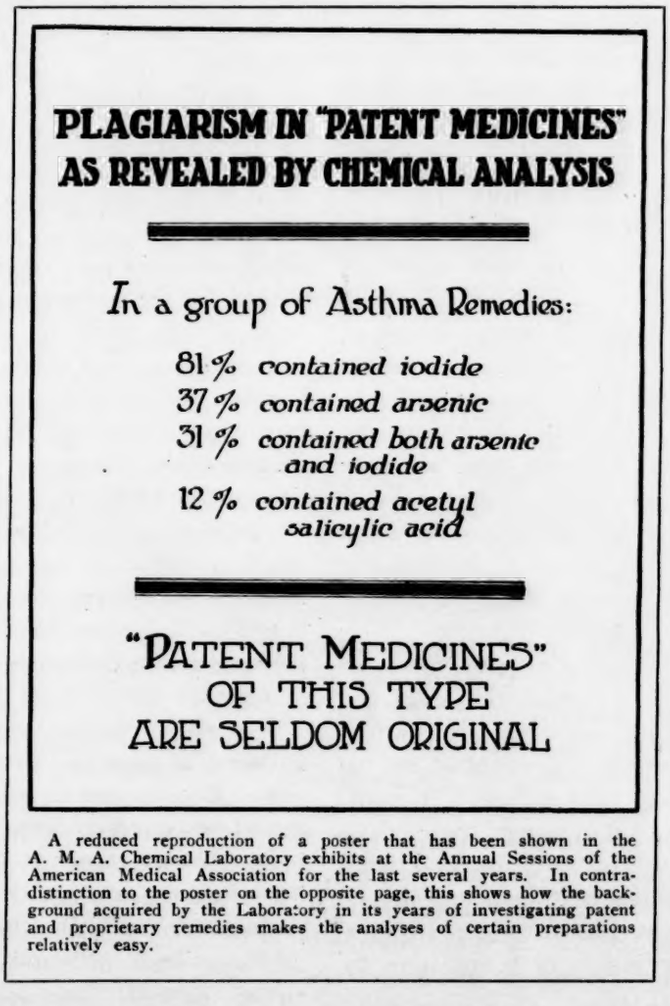
Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	93.3
Total solids	6.7
Insoluble solids	0.5
Ash	1.2
Salt (sodium chloride)	0.7
Fat (ether extract)	0.0
Protein (N × 6.25)	1.1
Titratable acidity, as citric acid	0.5
Reducing sugars before inversion, as dextrose	3.8
Reducing sugars after inversion, as dextrose	3.7
Sucrose	0.0
Crude fiber	0.2
Viscosity	30 seconds (standard 29-31)

Calories.— 0.20 per gram
5.7 per ounce

Vitamins.—The selection of high quality, matured, vine ripened tomatoes assures the vitamin content of the material used for the preparation of the juice. The construction and operation of the press and other equipment, the replacement of air with steam or water vapor in the atmosphere surrounding the tomatoes and juice during the preparation of the product and the avoidance of mixture of air with the juice at all stages of the process assure maximum retention of the vitamin content of the original juice as is obtainable by modern commercial canning methods.

Claims of Manufacturer.—Swift's Pure Tomato Juice is prepared from red ripe tomatoes and is seasoned with salt. This tomato juice is adaptable as an infant food. It is a good source of mineral salts and of vitamins A, B and C. Like orange juice, Swift's Pure Tomato Juice is a protective food for babies against scurvy. The final products of metabolism in the body are alkaline.


PLAGIARISM IN "PATENT MEDICINES" AS REVEALED BY CHEMICAL ANALYSIS
In a group of Asthma Remedies:
81 % contained iodide
37 % contained arsenic
31 % contained both arsenic and iodide
12 % contained acetyl salicylic acid
"PATENT MEDICINES" OF THIS TYPE ARE SELDOM ORIGINAL

A reduced reproduction of a poster that has been shown in the A. M. A. Chemical Laboratory exhibits at the Annual Sessions of the American Medical Association for the last several years. In contradistinction to the poster on the opposite page, this shows how the background acquired by the Laboratory in its years of investigating patent and proprietary remedies makes the analyses of certain preparations relatively easy.

ROTH'S BAMBY BREAD

Manufacturer.—The A. Roth Baking Company, Inc., Newport, Ky.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 70 per cent patent flour of Northwest wheat, water, sucrose, yeast, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, and a bleaching agent of soya bean and corn flour are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, sweetened condensed skim milk, shortening and a partially hydrolyzed starch to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

Moisture (entire loaf)	33.0
Ash	1.0
Fat (direct ether extraction method)	1.5
Protein (N × 6.25)	9.1
Crude fiber	0.4
Carbohydrates (by difference) other than crude fiber	55.0

Calories.— 2.70 per gram
76.7 per ounce

Claims of Manufacturer.—A bread of good quality.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 17, 1931

DISTRIBUTION OF BROMIDES IN THE BODY

Bromine has remained one of the most interesting and puzzling chemical elements in medicine, especially as regards the more or less specific central actions of bromide ions. The efficiency of sodium or potassium bromide in epilepsy has been sometimes regarded as a matter of saturation of the specific tissue with the bromide, a phenomenon which would seem to imply a direct and selective action on the central nervous system. Recently bromides have been tried as a test for the permeability of the so-called cerebrospinal barrier; estimations of the bromide content in cerebrospinal fluid have acquired a certain popularity. This test also implies an efficient cerebral penetration of bromides. If this were true, a correlation of cause and effect would be suggested. However, satisfactory evidence of a possible selective distribution in the central nervous system has been lacking. It would seem that the proper application of quantitative methods should give the answer to postulated cerebral selectivity. Now, such estimations have been provided by Toxopeus [1] of the Utrecht Pharmacologic Institute, who found a peculiar distribution of bromides in the body.

Toxopeus analyzed the important organs of seven dogs which had been fed sodium bromide. He administered moderately high doses, the equivalent of about 100 to 400 Gm. for a 70 Kg. adult, during periods of days. Most of the sodium bromide was found in the muscles, which contained about 37.3 per cent of sodium bromide as the average amount for the seven animals; next in order was the skin, which contained 16 per cent, and then came the blood with 9.3 per cent of sodium bromide. The brain stood eighth or ninth in order with from about 0.2 to 0.4 per cent of sodium bromide, and the bones, lungs, heart, liver and kidneys each contained more than the brain. The concentrations of sodium bromide in the various organs followed the same order as the distribution: for instance, the blood contained from about 2.5 to 4.5, and the muscles contained from about 1.5 to 5 times the concentration of the sodium bromide in the brain. Comparisons with chloride distribution, after administration of equivalent amounts of sodium chloride, showed that the order of the muscles and skin was reversed; that is, the skin came first with 35 per cent of total chlorides in terms of sodium chloride, then the muscles with 18.3 per cent, and the blood with 12.4 per cent. The results on chloride distribution confirmed the older results of Wahlgren and of Padtberg.[2] Accordingly, Toxopeus points out that the distribution of bromide as sodium bromide is different from that of normal as well as administered chloride as sodium chloride. The results of Toxopeus are distinguished by greater accuracy, owing to a better method of quantitative estimation, than those of previous authors. Although the individual variations were considerable and the quantitative method for the estimation of bromide was tedious and difficult, the consistency of the results of Toxopeus was good enough to indicate definite tendencies for the bromide, and real differences between the bromide and the chloride. However, no clear understanding of these tendencies and differences, and of the individual variations, could be obtained when the distribution of the two halides was studied on dogs under different experimental conditions. For instance, the mean values for bromide after thyroidectomy, thyroid feeding and injections of pituitary solution were about the same, but the results with chloride were more uniform than with bromide.

In view of the predominant seat of action of the halide, it is surprising to find the brain so low in the order of selectivity for bromides. This paradox may disturb some older teaching of the actions and uses of bromides but is not altogether peculiar or exclusive. There are other drugs whose actions may be out of proportion to, or outlast, a selective distribution to the dominant organ of action, notably digitalis, thyroxine and the barbitals. Perhaps the physical-chemical binding of drugs to elective organs or functions has been overemphasized. This overemphasis may be more easily urged in the case of poorly understood physiologic functions, such as sleep, which bromides have the power to promote. The newer suggestions for the mechanism of action of hypnotics, as of bromides and barbitals, concern themselves with stimulation of inhibition, a physiologic mechanism suggested also for sleep but which would not necessarily be conditioned on a high cerebral concentration or selectivity of the drugs. Quite the contrary, the effective doses of many hypnotic agents are so small as to deny the importance of special organ concentration and selection. There is no reason to believe that pathologic tissues, as in

1. Toxopeus, M. A. B.: Arch. f. exper. Path. u. Pharmakol. **149**: 263, **154**: 247, 1930.

2. Wahlgren: Arch. f. exper. Path. u. Pharmakol. **61**: 97, 1909. Padtberg: Ibid. **63**: 60, 1910.

epilepsy, would have a greater selectivity for hypnotic drugs. However, there might be a greater sensitivity of such pathologic function to hypnotics. Although the mechanism of the hypnotic and central actions of bromide remains unsolved, it appears certain that a special selectivity for the bromide ion (Br^-) in the nervous system does not exist and cannot be used as explanatory of its special action.

FAT EMBOLISM AND TRAUMA

A diagnosis of fat embolism is only occasionally made during life. Severe fat embolism, however, gives rise to two distinct clinical pictures, which are associated with definite pathologic lesions. The pulmonary type is characterized by a marked obstruction of the arterioles and capillaries of the lungs. In the cerebral type, the fat emboli pass through the pulmonary capillaries and cause lesions in the brain, heart and kidneys. Patients with the pulmonary type of fat embolism have symptoms of asphyxia before death; those with the cerebral type show involvement of the central nervous system. Vance [1] has reported a study of 246 necropsies made among the routine examinations in the office of the chief medical examiner of New York City, with a view to determining the relation of trauma to fat embolism. Sections of the lungs and kidneys made from each necropsy were examined under the microscope for fat emboli and a diagnosis was made only when it was determined that the globule of fat blocked the lumen of the arteriole or capillary. In this series, 164 cases which came to necropsy were associated with physical trauma; among them were 3 cases of fat embolism which were fatal, 11 which were severe and 34 cases which were moderate. There were 62 cases associated with trauma which gave negative results.

The type of trauma had an important influence on the production of fat emboli. Fractures of the skeleton gave a greater incidence and a more severe grade of fat embolism than did other forms of trauma. Vance reports that in fractures of the bones of the lower extremity from 40 to 60 cc. of liquid fat was found mixed with blood around the ends of the broken bones. The quantity of extravasation was usually much less when the patient lived more than a few minutes following the violence that produced the fracture. A study of fifty-nine necropsies showing fracture of the lower extremity suggested that the greatest amount of fat enters the circulation the first seven days after the fracture.

Fat embolism develops in comparatively few cases of fracture. In the series of fifty-nine cases, about 80 per cent were negative for fat emboli or showed at most a moderate number. Only six cases of fat embolism of at least moderate grade followed injury other than fracture. Two of these were the result of orthopedic manipulations, and one was associated with a contusion of the abdominal wall followed by a laparotomy. In the entire series of necropsies, among eighty-two cases not associated with physical trauma seven were positive for fat embolism of only a slight degree in the lungs. The kidneys in all of the seven cases were normal. Six of the seven patients died as a result of natural causes. As some cases of nontraumatic death may show a slight grade of fat embolism, such conditions found at necropsy cannot be considered a reliable indication that death was due to trauma. On the other hand, Vance believes that severe or moderate fat embolism is the result of injury and, when demonstrated at necropsy, is sufficient proof that the trauma occurred before death. Several cases of pulmonary fat embolism severe enough to be clinically important were found in this necropsy material. It was evident in a few of them that fat embolism was the cause of death and in others that it was a contributory cause.

Pulmonary fat embolism, according to Groendahl,[2] is liable to develop in patients whose heart muscle is weak. In one clinical variety there is a violent onset with dyspnea, cyanosis, and edema of the lungs, which occurs suddenly a few hours after the injury. Death in these cases is rapid. In a second clinical type there is an interval of several hours or days between the injury and the onset of symptoms. A persistent cough usually appears first, then blood-tinged sputum, dyspnea, cyanosis and signs of edema. Respiration toward the end passes gradually into the Cheyne-Stokes type and coma develops. In the pulmonary type, fat emboli can be demonstrated in the arterioles and capillaries of the lungs, the oval globules of fat blocking the lumen. During life, when large spherical cells containing fat granules are found in the sputum they are regarded as an important diagnostic sign.

Fat emboli which pass in large numbers from the pulmonary circulation into the arterial circulation may be distributed to all organs of the body, especially to the brain, the heart and the kidneys. The most prominent symptoms are caused by fat lodging in the brain. In such cases Vance divides the progress of the condition into three stages: first a period of from forty-eight to sixty hours between the trauma and the appearance of the symptoms; next the soporific stage, ushered in by dyspnea, restlessness, precardial pain and a higher pulse rate. In this stage the fat probably is passing through the capillaries of the lungs into the arterial blood, and the symptoms are due to difficulties experienced by the right side of the heart during this process. Cerebral symptoms then arise; the patient sinks into a stupor and gradually passes into the third stage, that of coma. The cerebral type of fat embolism may be overlooked if an injury of the head is present.

This study provides further evidence that one of the true etiologic factors in fat embolism is trauma to the

1. Vance, B. M.: The Significance of Fat Embolism, Arch. Surg. 23: 426 (Sept.) 1931.

2. Groendahl, N. B.: Deutsche Ztschr. f. Chir. 111: 56, 1911.

adipose tissue frequently produced by fractures of bones. Alleged etiologic factors, such as burns, poisons, lipemic conditions due to natural causes, and postmortem processes, did not prove to be important.

THE FUEL OF MUSCULAR ACTIVITY

What makes the human machine perform? This question, involving the fundamental problem of the source of the energy in muscular work, has been asked and answered many times in the history of modern physiology. To one who does not appreciate the difficulties of the investigation of this subject it may seem strange that the fuel at the expense of which daily muscular tasks are accomplished cannot be spoken of with complete conviction. Instead of coal and wood, gas and petroleum, the animal organism is limited to the proximate principles—the calory-yielding foodstuffs. We have repeatedly referred to the hypothesis, so vigorously championed of late by the English physiologist and Nobel laureate A. V. Hill, that carbohydrate is always the immediate source of energy in muscular activity. There are unquestionably occasions when the readily available bodily supply of glycogen and dextrose cannot suffice for the task to be accomplished; yet the muscles do not fail to work. May it be assumed, as some investigators do, that fat can serve directly to yield the requisite calories; or must the conclusion be that in such an emergency the fat must first be converted into sugar before it can be used to stoke the human engine?

In an exhaustive review of these questions, T. M. Carpenter [1] of the Boston Nutrition Laboratory of the Carnegie Institution of Washington, himself an experienced investigator of muscular energy, has ventured the following explanation: It would seem, he writes, as though with extremely light work the available metabolites which result from the mixture of nutrients at rest were first used. These may be conceived of as small molecules from carbohydrate, protein and fat. When the metabolites from fat which are easily oxidized are disposed of, the carbohydrate would be drawn on, because this may be the more easily metabolized. Subsequently the available type of carbohydrate becomes diminished and then there is a diminishing amount of carbohydrate metabolized with an increasing amount of fat. It seems, he adds, that some sort of combination, such as the foregoing, may explain the lack of change in the respiratory quotient when the work is very moderate, the increasing carbohydrate utilized when the work is increased, and drawing on fat when the work is continued.

Even more recently, Stewart, Gaddie and Dunlop [2] of the University of Edinburgh have studied the problem by the added device of following the fat content of the blood during muscular work in man. Their observations lead them to the conclusion that protein is not used for work, and that carbohydrate continues to be used throughout vigorous exercise, fat being used in increasing amounts under such conditions. Their data do not suggest any conversion of fat to carbohydrate. How long such conclusions will continue to be tenable remains to be seen.

1. Carpenter, T. M.: The Fuel of Muscular Activity of Man, J. Nutrition **4**: 281 (July) 1931.
2. Stewart, C. P.; Gaddie, R., and Dunlop, D. M.: Fat Metabolism in Muscular Exercise, Biochem. J. **25**: 733, 1931.

Current Comment

WELCOME TO ALABAMA

Beginning with July, 1931, the Medical Association of the State of Alabama and the state board of health have cooperated in the issuing of a journal of the two organizations, this periodical to be owned and published jointly each month by these two agents. The periodical makes a right start by becoming a member of the Cooperative Medical Advertising Bureau, in which practically all of the state medical journals are associated. Such periodicals as are associated in the bureau limit their advertising of drugs to products passed on and accepted by the Council on Pharmacy and Chemistry of the American Medical Association. The first issue of the *Journal of the Medical Association of the State of Alabama and of the State Board of Health* includes the president's address; two articles on scientific subjects; editorials; proceedings of the association, since the magazine replaces the previously published transactions; also a department of public health, of county society news, book abstracts and reviews. It is a well organized publication, apparently carefully edited, and it deserves therefore a special welcome as a useful addition to the group of state medical publications.

AUSTRALIAN POLIOMYELITIS

The recognized difficulties in practical control and specific therapy of poliomyelitis are greatly increased by the alleged demonstration by Burnet and Macnamara [1] of Melbourne, Australia, that there are at least two immunologically distinct types of this infection. Pooled convalescent serum from one community was found by them to be equally viricidal for the two types, while from a second community only one type of the virus was neutralized. The new virus was originally isolated from a child dying in the Children's Hospital, Melbourne. This virus produced typical poliomyelitis on intracerebral inoculation into monkeys, the few monkeys that recovered being almost entirely immune to this strain and their serums neutralizing the strain in vitro. The monkeys, however, showed practically no immunity to American poliomyelitis, nor would their serums neutralize the American virus. As a control test of this apparent difference in specificity they report that an almost absolute convalescent immunity in monkeys to the American strain is accompanied by no demonstrable immunity to the Melbourne virus.

1. Burnet, F. M., and Macnamara, J.: Brit. J. Exper. Path. **12**: 57 (April) 1931.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday and 10:30 a. m. on Saturday over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 19. Flies.
October 24. Louis Pasteur, a Pioneer of Medicine.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday and Saturday from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

October 19. Carbuncles.
October 21. Health and Music.
October 24. Be Sensible.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Personal. — Dr. Albert F. De Groat, Kansas City, Mo., has been appointed assistant professor of pathology at the University of Arkansas School of Medicine, Little Rock.——Dr. Ray M. Balyeat, Oklahoma City, among others, gave an illustrated address on "Etiology of Allergic Diseases" before the Tri-County Medical Society, October 1, in Camden.

CALIFORNIA

Section on Medical Problems and Public Relations.— The board of directors of the San Francisco County Medical Society recently adopted a resolution which provided for the creation of a section on medical problems and public relations. Only those members who enroll themselves as members of the section and who attend 60 per cent of all meetings of the section shall be entitled to vote. The officers of the section shall be a chairman, a vice chairman and a secretary. The organization meeting and election of officers of the new section will be held in the society's home, October 21.

Health at San Diego.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended October 3, indicate that the highest mortality rate (16) appears for San Diego and the rate for the group of cities as a whole, 9.6. The death rate for San Diego for the corresponding period last year was 12.2, and for the group of cities, 10. The annual rate for eighty-two cities was 12 for the forty weeks of 1931 and the same rate appears for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

COLORADO

Society News.—The Medical Society of the City and County of Denver was addressed, September 22, by Drs. John Mc. Foster, Jr., on "Treatment of Empyema"; Roderick J. McDonald, Jr., "Nephrosis," and Bertram B. Jaffa, "The Status of Fumigation in Denver." —— The Boulder County Medical Society was addressed, October 8, by Drs. William C. Johnson and William Bernard Yegge, both of Denver, on "Etiology and Pathology of Gastric Ulcer" and "Diagnosis and Treatment of Gastric Ulcer," respectively.

ILLINOIS

Tri-County Society Organized.—A resolution was adopted at a meeting and dinner of the Marion County Medical Society, September 24, in Centralia, which provided for the formation of a tri-county medical society to include the counties of Washington, Clinton and Marion. The president of the society was instructed to appoint committees to perfect the organization. The guest speakers included Drs. Jonas Curtis Lyter and Frank J. Tainter, St. Louis, whose subjects were "Bronchial Asthma" and "Pain in the Anatomical Region of the Fifth Nerve," respectively.

Chicago

Society News. — The Chicago Pathological Society was addressed, October 12, among others, by Drs. P. Arthur Delaney on "Dual Carcinomas, Primary in the Lung and in the Prostate," and Graham A. Kernwein, "Combined Congenital Exstrophy of the Female Urinary Bladder and Cloaca."——A symposium on the pathologic gallbladder featured the meeting of the Chicago Roentgen Society, October 14. The speakers were Drs. Milton M. Portis, Peter S. Clark and David Beilin. ——Dr. Leopold Benno Bernheimer, among others, will address the Chicago Society of Allergy, October 19, on "Allergic Nasal Disease." —— The Chicago Ophthalmological Society will be addressed, October 19, among others, by Dr. Vilray P. Blair, St. Louis, on "Blepharoplastic and Ptosis Operative Procedures."——Dr. John A. Bigler, Highland Park, Ill., among others, will address the Chicago Pediatric Society, October 20, on "Effect of Tonsillectomy and Adenoidectomy on the Schick Reaction."

Laboratory Building Opened.—The new laboratory building of the University of Illinois College of Medicine, which was opened with the beginning of the fall term, October 5, was erected at a cost of $1,500,000. The first floor is given over to the administrative offices and office of the dean; the second, to physiology; the third, to physiologic chemistry; the fourth, to pharmacology, and the fifth, sixth and seventh to

anatomy. Other buildings in the proposed medical center at Illinois, which have been completed, are the general hospital and outpatient department, research laboratory and library building, orthopedic and psychiatric institutes, institute for juvenile research, nurses' home and power plant. The building planned for the college of dentistry will also house the departments of bacteriology and pathology. The state department of public welfare is cooperating with the university in this building program.

INDIANA

Outbreak of Food Poisoning at Purdue. — Bacterium enteritidis, one of the paratyphoid group of organisms, was given as the cause of the outbreak of food poisoning at Purdue University, October 4, in which 119 students became ill from poisoning following their supper. The bacteriologists found the germ in the chicken salad. It was said the growth of the organism in the chicken was due to insufficient refrigeration. The system of refrigeration was recently changed at the university, and it was believed that the food was left too long without ice.

Society News. — Dr. Franklin S. Crockett, La Fayette, among others, addressed the thirty-seventh annual conference of Indiana State and County Health Officers in Indianapolis, September 22-23, on "Organized Medicine and Public Health Agencies." Dr. Thurman B. Rice, Indianapolis, announced at this meeting that the Indiana University School of Medicine plans to give a course for the training of health officers next summer, provided the enrolment is sufficient.——The Clinton County Medical Society held a joint meeting with the Clinton County Dental Society and the Clinton County Bar Association at Frankfort, October 1, with Mr. Albert Stump, Indianapolis, as the speaker on legal questions concerning the three professions.——Drs. Robert M. Moore, Indianapolis, and L.

Ray Ellars, Louisville, Ky., addressed the Second District Medical Society, Linton, September 17, on heart disease and surgical conditions in the abdomen, respectively.

IOWA

Dr. von Graff Comes to University of Iowa.—Dr. Erwin von Graff has been appointed professor of obstetrics and gynecology at the State University of Iowa College of Medicine, Iowa City. Dr. von Graff is a graduate of the University of Graz and took graduate work at Graz, Innsbruck and Vienna. He has been connected with the University of Vienna, Austria, for the last twenty years.

LOUISIANA

Society News.—The Avoyelles Parish Medical Society held its quarterly meeting and "annual ladies' meet" at Marksville, July 22; following the dinner, there was a theater party. Dr. Sidney C. Barrow, Shreveport, addressed the physicians on "Medical Organization and Medical Economics."——Dr. William L. Bendel, Monroe, among others, addressed the Ouachita Parish Medical Society, October 1, on "Intravenous Urography."——The Seventh District Medical Association was addressed, September 17, among others, by Drs. Edward William Alton Ochsner, New Orleans, and Edward S. Peterman, Crowley, on injection treatment of varicose veins and management of toxic goiter, respectively.

Appointments at Louisiana University.—The following appointments to the faculty of Louisiana State University School of Medicine were recently announced:

Dr. John Signorelli, professor of pediatrics.
Dr. Ludo von Meysenbug, professor of clinical pediatrics.
Dr. George S. Bel, honorary professor of medicine.
Dr. Clarence P. May, assistant professor of neuropsychiatry.
Howard Horace Beard, Ph.D., professor of physiologic chemistry.

Dr. Bel withdrew from active teaching in Tulane University of Louisiana School of Medicine in 1924, after having served more than thirty years on the faculty. All the appointees are residents of New Orleans except Professor Beard, who comes from Western Reserve University School of Medicine, Cleveland. The state university school of medicine was organized this year (THE JOURNAL, March 14, p. 868).

MARYLAND

Lectures for Social Workers.—A series of medical lectures for social workers has been arranged under the auspices of the American Association of Social Workers and the American Association of Hospital Workers; they will be given at the Medical and Chirurgical Faculty Building, Baltimore. Drs. Henry M. Thomas, Jr., will speak, October 19 and 23, on "Bright's Disease, Diabetes, Pneumonia" and "Glands of Internal Secretion"; Joseph Earle Moore, October 26, "Syphilis"; Lewellys F. Barker, November 2, "Nervous Diseases—Locomotor Ataxia, Paralysis Agitans, Psychoneurotic States"; Victor F. Cullen, November 10, "Tuberculosis"; Alexander J. Schaffer, November 16, "Diseases of Children—Infantile Paralysis"; Allen F. Voshell, November 30, "Diseases of Bones—Tuberculous Spine"; Curtis F. Burnam, December 3, "Cancer"; Louis P. Hamburger, December 15, "Minor Ailments—Aspects of Heart Disease." Dr. Thomas will also speak, December 21, on "Diseases of Old Age—Convalescence."

Dr. Sigerist to Lecture at Johns Hopkins.—A course of six lectures and a seminar course are being given at Johns Hopkins University School of Medicine during October and November by Dr. Henry E. Sigerist, professor of the history of medicine and director of the Institute of the History of Medicine of the University of Leipzig. Dr. Sigerist has been appointed visiting lecturer in the history of medicine at the school during the academic year 1931-1932. The lectures are on "The Evolution of Medicine in Its Cultural Aspects." The first, "Primitive Conceptions of Disease," was given, October 15. Coming lectures will be: October 22, "The Religious Character of Oriental Medicine"; October 29, "Philosophical Attitude of the Greek Physicians Toward Medicine"; November 5, "Dawn of Modern Medicine"; November 12, "Cultural Background of Modern Medicine," and, November 19, "Development of Medicine During the Nineteenth Century." The seminar course is on "The Interpretation of Medical Texts." The first lecture was given, October 16, on "The Edwin Smith Surgical Papyrus"; succeeding lectures will be: October 23, on "The Tablets Relating Cures Found at Epidauros"; October 30, "Problems of the Corpus Hippocraticum"; November 6, "The Fragments of the School of Empirics"; November 13, "The Treatise on 'The Interrogation of Patients' by Rufus of Ephesus," and, November 20, "Latin Medical Texts of the Early Middle Ages."

MASSACHUSETTS

Fund for Study of Pneumonia.—An annual appropriation of $36,200 for three years with a tentative agreement of support for an additional two years has been granted by the Commonwealth Fund of New York to the Massachusetts Department of Health for a study of pneumonia. The study is now in progress with the aid of a special advisory committee composed of Drs. Edward S. Calderwood, Arthur A. Cushing, Roger I. Lee, Edwin A. Locke, Frederick T. Lord, Robert N. Nye, Albert E. Parkhurst, Joseph H. Pratt, Milton J. Rosenau, Wilson G. Smillie and George L. Walker. Dr. Roderick Heffron has been appointed field director. The purposes of the investigation are to study the epidemiology, to promote prompt diagnosis, to encourage and facilitate earlier and more general therapeutic use of concentrated serum, to improve methods for serum production, to correlate the studies on serum production with the results following its clinical use, and to devise procedures for the future prevention, serum treatment and control of pneumonia. It was decided that certain hospitals should be chosen in different parts of the state, with the provision that they have or agree to have a special service for pneumonia. Various laboratories were to be chosen as pneumococcus type determination stations and their technicians trained at the expense of the Pneumonia Study Fund. These laboratories will give free typing service to physicians in the areas chosen for the study. The bacteriologic laboratory of the state department of health will continue to make type determinations. A special one-day pneumonia course will be offered by the Harvard University Medical School through its courses for graduates in Boston and other cities where there is sufficient demand. A five-year study of antipneumococcus immunity and of serum production is under way at the antitoxin and vaccine laboratory. The concentrated serum necessary to supply the selected hospitals and their consultants will be manufactured and distributed, and the costs will be paid from the special Pneumonia Service Fund.

MICHIGAN

Society News.—A joint meeting of the Wayne County Medical Society and the Detroit Obstetrical and Gynecological Society was addressed, October 6, by Dr. Rae T. La Vake, Minneapolis, on "Important Problems in Obstetrics and Gynecology." Dr. John E. Gordon, Detroit, addressed the Wayne County Medical Society, October 13, on "Practical Problems in Poliomyelitis."

Personal.—Dr. Claude R. Keyport, Grayling, has been appointed a member of the state board of registration in medicine to succeed Dr. William H. Marshall, Flint, resigned. ——The degree of master of arts was conferred on Dr. Charles G. Jennings, Detroit, by the University of Michigan School of Medicine, Ann Arbor, at its eighty-second annual opening, September 28.

County Society Offered Police Protection.—The Wayne County Medical Society was recently offered police protection by the Detroit Police Department. This action was taken when it was noted in the police records that a physician had been held up and robbed while making a professional call. According to a letter addressed to the society, whenever a physician is suspicious of a professional call, he is requested to call police headquarters before starting out, and he will be met by an officer in the vicinity of the address to which he has been called.

MINNESOTA

Medical Alumni Meeting.—The annual meeting of the Minnesota Medical Alumni Association will be held in Minneapolis, October 30. Among the speakers will be Drs. Edward Starr Judd, Rochester, President, American Medical Association, on "Present Status of Surgery of the Gallbladder," and Solon Marx White, Minneapolis, "The Unimportant Heart Murmur." Dr. Irving McQuarrie, Minneapolis, will hold a pediatric clinic and Dr. Wallace H. Cole, St. Paul, an orthopedic clinic. There will also be demonstrations with slides and motion pictures of skin lesions and of neurologic gaits and a practical demonstration of injections for varicose veins.

County Society's Program.—The Hennepin County Medical Society was addressed, October 5, by Dr. Stephen H. Baxter, Minneapolis, on "O Tempora; O Mores," and Dr. Moses Barron, "Purposes and Function of a Medical Society." Dr. John P. Schneider talked on "Newer Concepts of the Anemias" before the society, October 7, and Dr. Charles H. Watkins, Rochester, October 14, on "Recent Progress in the Treatment of the Anemias." The society will be addressed, October 21, by Drs. Benjamin J. Clawson and Macnider Wetherby, "Certain Aspects in the Treatment of Arthritis,"

and, October 28, by Dr. Hyman S. Lippman, St. Paul, on "Impulsive Behavior as a Cause of Childhood Delinquency."

Society News.—Dr. George S. Wattam, Warren, was elected president of the Northern Minnesota Medical Association at its recent annual meeting in Hibbing; Dr. Cyril M. Smith, Duluth, was made vice president, and Dr. Oscar O. Larsen, Detroit Lakes, reelected secretary for the fourth successive year. The next annual meeting will be held at Crookston.——Drs. Jay Arthur Myers, Minneapolis, and Edward A. Meyerding, St. Paul, discussed the Mantoux test for tuberculosis at a meeting of the Dodge County Medical Society, October 9.——The north central branch of the American Urological Association will hold its eighth annual meeting in St. Paul, October 29-31. Dr. Frank Hinman, San Francisco, will lead a discussion of "Obstruction of the Upper Urinary Tract" and Drs. James R. Learmonth and William F. Braasch, Rochester, one on "The Myoneural Mechanism of the Urinary Tract." Clinical demonstrations and operative clinics will be held at the Ancker Hospital, St. Paul, the University Hospital, Minneapolis, and Glen Lake Sanatorium, Oak Terrace.——Drs. Moses Barron and Martin Nordland addressed the Minnesota Academy of Medicine, Minneapolis, October 14, on "Importance of Hepatomegaly and Splenomegaly in Differential Diagnosis" and "Relief of Pain in Advanced Tuberculosis of the Larynx by Means of Surgery," respectively.

MISSOURI

Society News.—Drs. Hyman I. Spector and Daniel L. Sexton, St. Louis, addressed the St. Francois-Iron-Madison County Medical Society, Farmington, September 15, on "Lung Abscess" and "Evaluation of Present-Day Endocrine Therapy," respectively.——Dr. Dudley A. Robnett, Columbia, addressed the Buchanan County Medical Society, St. Joseph, September 2, on "Carcinoma of the Cervix Uteri."——Drs. Otto Jason Dixon, Kansas City, and Lotis V. Murray, Pleasant Hill, addressed the Cass County Medical Society, Pleasant Hill, September 10, on "Osteomyelitis of the Skull Following Sinus Infection" and "Undulant Fever," respectively.——Dr. Louie F. Barney, Kansas City, Kan., presented two papers before the Greene County Medical Society, Springfield, September 11, on "Treatment of Acute Generalizing Peritonitis" and "Spinal Anesthesia."——The Jackson County Medical Society was addressed, October 13, by Drs. Ira H. Lockwood on "Roentgenographic Examination of the Breast in Health and Disease"; John H. Ogilvie, "Observations in the Course of a Statistical Analysis of End-Results of Breast Surgery," and Jabez N. Jackson, "Operative Approach to Cancer of the Breast."

NEW YORK

Society News.—Dr. George T. Pack, New York, addressed the Dutchess-Putnam Counties Medical Society, September 16, on "Management of Cancers of the Breast, Uterus and Intra-Oral Cavity."——The annual conference of secretaries of county medical societies was held in Albany, September 15. Drs. Louise W. Beamis Hood, Buffalo, and Alec N. Thomson, Brooklyn, spoke on "Erie County and Public Relations" and "The Health Examiner," respectively, and Mr. Louis J. Neff, Mineola, executive secretary for Nassau County, on "A County Society Publication."——Speakers at the scientific session of the twenty-fifth annual meeting of the first district of the Medical Society of the State of New York, Newburgh, October 7, were Dr. H. Burton Logie, on "Medical Nomenclature" and Dr. Harry Wessler, New York, "Lung Abscess—Newer Phases of Treatment"; Dr. Marcus A. Rothschild, New York, "Some Phases of Circulatory Failures and Their Treatment," and Verne A. Zimmer, director of compensation division, state department of labor, "Compensation and the Doctor."

Committee to Study Health Unit Plan.—A committee composed of the committee on public relations and that on public health and medical education, which was instructed by the house of delegates of the Medical Society of the State of New York to study the report of the governor's special health commission issued last February, held its first meeting in Albany, September 11. Dr. Thomas P. Farmer, Syracuse, was made chairman and Dr. Joseph S. Lawrence, secretary. The committee has asked for an expression of opinion from every county society in the state concerning the recommendation of the special commission for the compulsory establishment of county health units (THE JOURNAL, April 4, p. 1153). A bill providing for this change in organization failed to pass the New York legislature at its last session, but it is expected that a similar bill will be introduced at the next session. Three recommendations of the special commission were enacted into law: construction of three tuberculosis hospitals by the state, provision for the treatment of venereal disease at public expense, and establishment of divisions of cancer control and of orthopedics in the state department of health. Members of the committee are, in addition to Dr. Farmer and Dr. Lawrence, Drs. Martin B. Tinker, Ithaca; Edward G. Whipple, Rochester; Mahlon H. Atkinson, Catskill; William A. Groat, Syracuse; James E. Sadlier, Poughkeepsie; Augustus J. Hambrook, Troy; Oliver W. H. Mitchell, Syracuse; William D. Johnston, Batavia, president of the state society, and Frank Overton, Patchogue, editor of the state journal.

New York City

University News.—A course in orthopedic and bone and joint surgery will be given at the Post-Graduate School of Medicine, Columbia University, Twentieth Street and Second Avenue, October 19-24, under the direction of Dr. Fred H. Albee.

The Edward Gamaliel Janeway Lectures.—Sir Thomas Lewis, physician of the University College Hospital, London, will deliver the Edward Gamaliel Janeway Lectures, October 24, on "Ischemic Paralysis," and, October 26, will give a clinical demonstration on thrombo-angiitis obliterans, at the Blumenthal Auditorium, Mount Sinai Hospital.

Society News.—Drs. Shirley W. Wynne and Walter I. Galland were among the speakers on a general program on poliomyelitis at the meeting of the New York Physical Therapy Society, October 7.——Dr. Charles H. Mayo, Rochester, Minn., addressed the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, October 13, on "Medical Progress and the Diffusion of Medical Knowledge."——Dr. William Sydney Thayer, Baltimore, will demonstrate "The Importance of Simpler Methods of Thoracic Examination" at Mount Sinai Hospital, October 30.

OHIO

Hospital News.—Three Cleveland hospitals, St. Luke's, Maternity and Mount Sinai, have announced an instalment payment plan for maternity patients. The maximum total payment is $55 for prenatal care, delivery and two weeks' hospital care. The payments are $2 a week for six months.

Personal.—Dr. Henry J. Gerstenberger, professor of pediatrics, Western Reserve University School of Medicine, Cleveland, has been elected to honorary membership in the German Pediatric Society.——Dr. Albert M. Bleile, professor of physiology at Ohio State University College of Medicine, Columbus, has retired from active service with the rank of professor emeritus. He has been connected with the university for fifty-two years.——Dr. Walter B. Lacock, Columbus, has been appointed health commissioner of Hocking County, succeeding the late Dr. Morton Bland.

Society News.—Dr. William Kelley Hale, Wilmington, among others, addressed the Clinton County Medical Society, September 8, on causes of cancer.——Dr. Edson J. Emerick, Columbus, addressed the Fayette County Medical Society, September 3, on brain tumor.——Dr. James C. Walker, Jr., Dayton, presented a paper on "Causes of Lumbar-Sacral Backache" before the Miami County Medical Society, Troy, September 4.——Dr. Floyd C. Hendrickson, among others, addressed the Stark County Medical Society, Canton, September 8, on recent advances in urology.——Dr. Joseph Price, Columbus, discussed anesthetics at a meeting of the Ross County Medical Society, September 3.——Dr. Ludwig Adler, Vienna, Austria, addressed the Toledo Academy of Medicine, October 2, on "Vaginal Hysterectomy for Cancer of the Cervix."

PENNSYLVANIA

State Medical Election.—Dr. William H. Mayer, Pittsburgh, was installed as president of the Medical Society of Pennsylvania at its annual meeting in Scranton, October 5-8, and Dr. Charles Falkowsky, Jr., Scranton, was made president-elect. Dr. Walter F. Donaldson, Pittsburgh, was reelected secretary. The next annual session of the association will be held in Pittsburgh.

Society News.—Dr. Drury Hinton, Philadelphia, addressed the Montgomery County Medical Society, Norristown, October 14, on "Fracture Problems as They Interest the General Practitioner."——Three addresses on professional relationships will comprise the program of Delaware County Medical Society, Chester, November 12, as follows: "Relation of Dentistry to Medicine," Emerson R. Sausser, D.D.S., Philadelphia; "Relation of Pharmacy to Medicine, to Dentistry," Charles H. La Wall, Pharm.D., Philadelphia, and "Relation of Medicine to Pharmacy and Dentistry," Dr. Frank C. Hammond, Philadelphia.——Dr. William Cullen Bryant, Pittsburgh, addressed the Washington County Society, Monongahela, October 14, on "Spinal Anesthesia and Its Use in Urology."

Philadelphia

Society News. — Dr. William R. Gilmour addressed the Philadelphia Academy of Surgery, October 5, on fractures of the pelvis.——Dr. Thomas M. McMillan addressed the Philadelphia Medical Examiners' Association, October 5, on "Certain Aspects of Cardiology of Importance in Life Insurance Selections."——Drs. William Pepper and Francis R. Packard addressed the College of Physicians of Philadelphia, October 7, on "The First Medical School in the American Colonies" and "The First Hospital in the American Colonies," respectively.

Woman's Clinic for Health Appraisal.—Health appraisals are to be offered to women at moderate cost in a new clinic at the Woman's Medical College of Philadelphia. Dr. Sarah I. Morris, recently appointed professor of preventive medicine, will be in charge of the work. If treatment is required, patients are to be referred to their personal physicians. "It is intended to bring about the early reference to their physicians of those who by prompt attention to correctible conditions thus caught at their beginnings may be saved illness and economic stress later," the announcement said.

GENERAL

Meeting of Railway Surgeons Postponed.—The annual session of the American Association of Railway Surgeons, scheduled to be held in St. Louis, November 4-6, has been postponed for one year.

Society News.—Dr. John A. Tamisiea, Omaha, was elected president of the Aero Medical Association of America at its recent annual meeting in Kansas City. —— Louis I. Dublin, Ph.D., New York, was installed as president of the American Public Health Association at the recent annual meeting in Montreal, and Dr. John A. Ferrell, New York, was chosen president. The 1932 meeting will be held in Washington, D. C. —— At the annual meeting of the American Roentgen Ray Society, Atlantic City, in September, Dr. Leopold Jaches, New York, was installed as president and Dr. William A. Evans, Detroit, was made president-elect. Dr. Eugene P. Pendergrass, Philadelphia, is secretary. The next annual session will be held in Detroit.——The 1932 meeting of the American Proctologic Society will be held in Memphis, Tenn., May 6-7, it is announced. Dr. Curtice Rosser, Dallas, Texas, is secretary of the society.

Report of the Milbank Fund. — Appropriations of the Milbank Fund for 1930 amounted to $1,436,425.83, exceeding the grants made during any of the twenty-six years of its existence, according to the annual report recently issued. These appropriations were made to twenty-five organizations, through which the fund participated in thirty-six projects in health administration, health education, research and social welfare. Two of the fund's projects, the health demonstrations in Syracuse and in Cattaraugus County, were terminated at the end of the year. Local authorities have now taken over the demonstration programs and the fund will hereafter participate only in research projects. In the Bellevue-Yorkville demonstration in New York City, which is being continued, activities during the past year included campaigns against tuberculosis, diphtheria and venereal disease and a special drive for periodic health examination. The fund financed a committee on neighborhood health development, through which a plan for the construction of sixteen health centers in New York was worked out. Other activities that have received financial aid include the Association for Improving the Condition of the Poor, the Judson Health Center, the East Harlem Health Center and the Bowling Green Neighborhood Association. For the second year the fund financed the operation of a rural health department in China (THE JOURNAL, September 5, p. 714). A grant of $65,000 was made to the diphtheria prevention campaign begun in New York in 1929. Two fifths of the fund's disbursements in the past year, $607,250, were in the field of social welfare and relief, the largest ever made in this field in any one year, according to the report. In addition, surveys were conducted, both independently and in cooperation with other agencies, on various phases of health administration, health education, vital statistics, epidemiology and other topics. In 1930 Edward W. Sheldon, president of the fund since its beginning, resigned and was succeeded by Albert G. Milbank.

LATIN AMERICA

School of Medicine to Be Reestablished.—The School of Medicine, Surgery, Dentistry and Pharmacy at Granada will be reestablished under a decree recently approved by the Nicaraguan Congress, according to the *Bulletin of the Pan American Union*. The chief executive is authorized to designate the necessary professors. According to the decree, it was stated, students in the schools at Leon and Granada who pass successfully the examinations at their own school must take a general examination at Managua before they will be authorized to practice their profession. The board of examiners will be composed of two professors from Granada, two from Leon, appointed by the respective schools, and a physician from Managua appointed by the ministry of public instruction. The school which the student attended can confer the degree on him only on receipt of a certificate from the board to the effect that the student has passed his examination.

FOREIGN

New Journal on Orthopedics.—A quarterly journal, the *Revista de Ortopedia y Traumatología*, has recently appeared in Buenos Aires, Argentina. Drs. J. Valls and C. E. Ottolenghi are the editors. The first issue contains, in addition to original illustrated articles on several topics related to orthopedics, fifteen pages of abstracts from current literature on orthopedics.

Memorial to Hughlings Jackson. — A fund sought by British neurologists for the purpose of endowing a triennial lecture in honor of Hughlings Jackson, who died in 1911 (THE JOURNAL, June 20, p. 2134), has been achieved, it is reported. A gold medal bearing a portrait of Dr. Jackson and an honorarium of £100 will be awarded to the lecturer, who will, it is hoped, be a man of international reputation. Fifteen subscriptions were received from American physicians, according to the treasurer.

Competitive Prizes Again Offered.—The *British Medical Journal* notes that the following prizes are offered: Katherine Bishop Harman Prize, Middlemore Prize and the Sir Charles Hastings Clinical Prize. The purpose of the Katherine Bishop Harman Prize, having a value of £80, is the encouragement of study and research directed to the diminution and avoidance of the risks to health and life that are liable to arise in pregnancy and childbearing. All medical practitioners will be eligible to compete. The Middlemore Prize consists of a check for £50 and a certificate, and will be awarded this year to the author of the best essay on "Sympathetic Ophthalmia Before and After 1914." The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, was established for the promotion of systematic observation, research and record in general practice. Any member of the British Medical Association is eligible, the work to include personal observations and experiences collected by the candidate in general practice. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize. Essays for all prizes must reach the medical secretary, British Medical Association House, Tavistock Square, London, W. C. 1, not later than December 31. They must be signed by a motto and accompanied by a sealed envelop marked with the same motto and containing the candidate's name and address.

Government Services

Army Personals

Major Carl R. Mitchell, assigned at Fort Crook, Nebraska, effective on completion of present tour of foreign service; Major Leonard W. Hassett, relieved at Fort Robinson, Nebraska, and will sail from San Francisco about November 25 for the Philippine Department; Major Forrest R. Ostrander, relieved at Panama Canal, C. Z., effective on completion of tour of foreign service, and assigned at Fort Sam Houston, Texas; Lieut. Col. George W. Cook, relieved at Fort Leavenworth, Kansas, and will sail from New York about January 7 for the Panama Canal Department; Capt. Paul Hayes, relieved at Fort Sheridan, and will sail from New York about January 13 for the Hawaiian Department.

Increase in Ex-Service Men in Government Hospitals

Records of the Veterans' Administration show that the government was providing hospitalization for 39,623 ex-service men on July 31, as compared with 30,677 on July 31, 1930, an increase of 8,946, or about 30 per cent. Nearly half of the number receiving care are psychiatric patients, about one fifth are tuberculous and the remainder suffer from a variety of general diseases. On July 31 of this year there were 3,166 unoccupied beds in all government hospitals as against 2,530 in 1930. Of veterans awaiting hospitalization there were this year 90 with service-connected disabilities and 3,426 with non-service-connected conditions. According to the veterans' admin-

istrator, the primary factors determining the number carried on the waiting list are turnover in applications and personal reasons. Delay for personal reasons is primarily due to the fact that hospitalization for minor conditions has been authorized, and veterans may set a date after which they will accept hospitalization. Emergency cases are not carried on the waiting list, it was stated, as hospitalization is authorized in these cases without regard to the type of disability.

Changes in Veterans' Administration Personnel

Recent issues of the Medical Bulletin of the Veterans' Administration note the following changes in personnel, among others:

HOSPITALS

Dr. Victor H. Bean, to Marion, Ind.
Dr. Clinton G. Beckett, to Marion.
Dr. Forest G. Bell, resigned at Hines, Ill.
Dr. Thomas W. Bennett, reinstated at Boise, Idaho.
Dr. William W. Bourke, assigned at Knoxville, Iowa.
Dr. Ambrose McC. Brown, reinstated at Dwight, Ill.
Dr. George E. Burdick, to East St. Louis, Ill.
Dr. Bennette A. Burks, reinstated at Rutland Heights, Mass.
Dr. James B. Chandler, to Fargo, N. D.
Dr. Rembert J. Coney, appointed at Portland, Ore.
Dr. Edwin R. Curran, resigned at Coatesville, Pa.
Dr. Albert M. Eaddy, appointed at Coatesville.
Dr. Pierre J. Fisher, to Northport, L. I.
Dr. Morris Feinstein, to Northport.
Dr. Paul M. Fulmer, resigned at Kansas City.
Dr. Edwin P. Hall, appointed at Memphis, Tenn.
Dr. Stanton S. Hoechstetter, to Newington, Conn.
Dr. John W. Hodges, resigned at Hines, Ill.
Dr. Arthur Lederer, reinstated at Jefferson Barracks, Mo.
Dr. Alexander C. Leonardo, to Washington, D. C.
Dr. David S. Levy, assigned at Hines.
Dr. James A. McAllister, resigned at Atlanta.
Dr. John W. Myers, resigned at Hines.
Dr. Rosco E. Petrone, to Camp Custer, Mich.
Dr. Harry H. Sand, to Hines.
Dr. Paden E. Woodruff, to Lyons, N. J.

REGIONAL OFFICES

Dr. David H. Allen, to Cincinnati.
Dr. Charles L. Anderson, resigned at Washington, D. C.
Dr. James C. Ballard, resigned at Little Rock, Ark.
Dr. Walter A. Black, to Dallas, Texas.
Dr. Wallace B. Cannon, to Nashville, Tenn.
Dr. Franklin Cohn, appointed at New York.
Dr. Thomas E. Cook, resigned at Dallas.
Dr. Ralph G. Cressman, to San Francisco.
Dr. Hiram Gallagher, to Los Angeles.
Dr. William E. Gardner, resigned at San Francisco.
Dr. Sidney J. Harper, Jr., resigned at Cincinnati.
Dr. John K. Ross, to Washington, central office.
Dr. Leonard L. Wilson, appointed at Little Rock.

The Government Needs Physicians

The U. S. Civil Service Commission announces open competitive examinations for senior medical officer, medical officer and associate medical officer. Applications for these positions must be on file with the commission at Washington, D. C., not later than December 30. The commission reserves the right to issue subsequent notice closing the receipt of applications before that date. The examinations are to fill vacancies in the Veterans' Administration, U. S. Public Health Service, Indian Service, Coast and Geodetic Survey and Panama Canal Zone. The entrance salary for senior medical officer is $4,600 a year, for medical officer, $3,800 a year, and for associate medical officer, $3,200 a year. Competitors will not be required to report for examination at any place but will be rated on their education and experience. Further information may be had from the secretary of the U. S. Civil Service Board of Examiners at the postoffice or customhouse in any city or from the civil service commission, Washington, D. C.

Memorial to General Kennedy

A Gothic lantern made of wrought iron was recently placed in the Memorial Chapel of the Army Medical Center, Washington, D. C., in honor of the late Brig. Gen. James Madison Kennedy, medical department, U. S. Army. The memorial was made possible by contributions from officers and nurses of the medical department of the army. General Kennedy served, among many other positions, as assistant to the surgeon general, and as commandant at the Army Medical Center in Washington. He died, Oct. 15, 1930, in the Letterman General Hospital, San Francisco.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 19, 1931.

Annual Report on Public Health

The report for 1930 on the state of the public health of England and Wales by the chief medical officer of the ministry of health, Sir George Newman, has just been published. The year was exceptionally healthy, for it showed the lowest total death rate and the lowest infant mortality yet recorded. The principal causes of death were: diseases of the heart and circulation, 245 per thousand deaths; cancer, malignant disease, 127; bronchitis, pneumonia and other respiratory diseases, 114; diseases of the nervous system, 90; tuberculosis, 79. This classification is followed from year to year and usually shows the same order, but on no previous occasion has the number of deaths from cancer exceeded those from respiratory diseases. The cancer deaths numbered 57,882 and again showed an increase (against 56,896 for the previous year). This is equivalent to a death rate of 1,454 per million persons living. "The tendency to regard the annual increase of mortality as evidence of a growing inability to control this disease is perhaps natural but is unduly pessimistic. If it be true, as is generally agreed, that a fraction of the increase is a natural consequence of the higher average age at death and that another fraction is a result of greater diagnostic ability, especially in cancer of the deeper organs, it is clear that in the absence of some striking improvement in methods of treatment an annual increase of recorded mortality should not only be not received with surprise or dismay, but may actually be expected for some years to come, bearing in mind the long interval usually elapsing before the preceding pathological condition develops malignancy."

THE DECLINE OF TUBERCULOSIS

The number of deaths from all forms of tuberculosis was 35,745 against 37,990 in 1929 and 36,623 in 1928. The death rates per million of population were: males, 1,037; females, 770; persons, 898. For pulmonary tuberculosis the corresponding figures were: males, 863; females, 624. The deaths from nonpulmonary tuberculosis were only half those in 1918. The rates for 1930 were the lowest ever recorded in this country. All ages and both sexes shared in the decline, which was more marked in childhood and less marked in young adults and in the old than at other ages. This harmonizes with the experience of recent years. The instruction in hygiene now given in the elementary schools is regarded as an excellent foundation on which popular knowledge as regards tuberculosis may be imposed. Similar instruction in the higher schools is recommended. A considerable step has been taken by the public in recognizing that tuberculosis is an infectious rather than an hereditary disease. It should also be recognized that, treated in time, it is essentially a curable disease; that the great majority of people become infected with tuberculosis, while comparatively few suffer from it; and, above all, that massive and continuous infection is the danger.

THE LOWEST INFANT MORTALITY BUT NO LOWERING OF PUERPERAL MORTALITY

The infant mortality was the lowest recorded, being 60 per thousand births as compared with 74 in 1929. But there continued failure to secure any lowering of the puerperal mortality, which indeed showed a slight increase on 1929, being 4.40 as compared with 4.33.

ANTENATAL CENTERS

In recent years there has been a great improvement in the teaching of antenatal care, both to medical students and to pupil midwives. With reference to antenatal centers, it is possible that the antenatal clinic, especially in the larger cities, may to

some extent disappear, leaving antenatal supervision to the private physician with the assistance of a small number of consultative antenatal clinics staffed by specialists. But whatever the ultimate destiny there will remain a need for antenatal clinics, particularly in industrial and urban areas. The full development of prenatal supervision will depend greatly on the efficiency of these clinics, as regards both the advice given and the training they provide for physicians.

INCREASE IN SICKNESS CLAIMS

Despite the indisputable fact that the health of the people has immensely improved in recent years, sickness claims under the insurance act have rapidly increased. These claims are an example of the widespread tendency to get something for nothing, stimulated by socialistic legislation. The amount paid by the lodges for sickness and disablement benefit was $49,000,000, which covers a period of loss of work amounting to the almost astronomical figure of 510,577 years. The report points out that though laxity of certification is widespread it is by no means general; to the certification of a large number of physicians no exception can be taken. "If the doctor furnishes certificates incorrectly or unreasonably extending the period of incapacity or prescribes something akin to 'public assistance' on request, he may be performing a service of charity or even indirectly of medical aid—but he is rendering a direct disservice to the whole system of health insurance." What is necessary is that representative professional opinion should be brought to bear on those whose standard is defective, and the development of a stronger sense of responsibility. It is satisfactory to observe signs of increased care in the certification of incapacity.

IMPROVEMENT OF THE NUTRITION OF THE PEOPLE

Nutrition is discussed in a section on the relation of food to health and disease. Sir George states that healthy nutrition is something much wider than mere feeding or stoking the engine. Malnutrition of the school child in this country has declined in a single generation from 10 to 1 per cent. This remarkable change has been due to the medical care of the child, to supplementary feeding at school, and to far-reaching social improvement and higher wages in the home. Somewhat comparable amelioration has taken place among the adult population. The army canteens during the war, the industrial canteens in factories, the improved dietaries in hospitals, sanatoriums and infirmaries, the enormous development of the catering trade, the manufacture of prepared foods, the ever widening public service, an increased wage—all have contributed to improved nutrition. The whole dietary has undergone reform—food, fruit, fish, meat and dairy products are brought from distant sources and transported under new methods of refrigeration, canning and packing. Yet our nutrition leaves much to be desired. There is still much apathy and ignorance in the choice of foods, often with deplorable cookery. Many hungry consumers bolt their food or wash it down with tea or beer. Some are underfed, but many are overfed. Science is not sufficiently applied to nutrition. With a view to the better application of modern advances to nutrition, a committee has been appointed to tender advice to the ministry with especial reference to dietaries for use in public institutions and the instruction of the people in the means of improving their nutrition.

A New Investigation of Encephalitis Following Vaccination

The ministry of health has invited the assistance of all practicing physicians to enable the ministry to maintain a full investigation of the characteristics of the acute disease of the central nervous system (such as meningitis of any kind or origin, encephalitis, or poliencephalitis) which has been postvaccinal, this term being used in the sense that the first symptoms have occurred within four weeks of vaccination. A similar request was made in 1926 to enable all the information so obtained to be placed before a committee appointed by the ministry and the medical research council to consider vaccination questions. This committee made two reports, in July, 1928, and January, 1931 (The Journal, February 7, p. 451). Its work was greatly facilitated by the information supplied, and, as there is still need for further study of these rare cases, the request is repeated. Similar information is desired of the occurrence of cases of acute disease of the nervous system following such acute infections as measles, German measles, chickenpox, whooping cough or influenza. The committee on vaccination found that when these sequels were fatal the lesions presented a close resemblance to those of postvaccinal encephalitis. Information of the kind requested will permit of local inquiry to ascertain clinical details which subsequently may not be obtainable and may enable the ministry to arrange for expert postmortem examinations and pathologic examination of specimens. The request to physicians which is therefore made is that when called to any case of disease of the central nervous system with acute onset they will inform the ministry as soon as possible if vaccination has preceded the onset of symptoms within four weeks, or if the symptoms have immediately followed an acute infectious illness. In view of inquiries which have been made as to the possibility of using a specific treatment in postvaccinal encephalitis, the Lister Institute has prepared an antivaccinal horse serum, doses of which can be supplied on application to the ministry. Attention is also called to the success obtained in certain cases on the continent by the treatment of this condition by intravenous injection of serum derived from persons who have recently been vaccinated.

Lord Moynihan's Loss

Lord Moynihan, who has just returned from South America, has suffered irreparable loss from the burning of his office in Leeds. He kept all his papers in the house. Everything is gone—his records of every patient that he had ever seen, a multitude of letters, and copies of the first editions of all the books he has written. He has also lost some valuable pictures of great surgeons.

PARIS

(From Our Regular Correspondent)

Sept. 2, 1931.

Report of the Committee on the B C G Vaccine

The Academy of Medicine, at the request of Professor Calmette, appointed a committee to study the opinions from different sources on the value of his antituberculous vaccine (B C G). The committee pursued the inquiry for several weeks, making a comparison of all the statistics published to date in any country; its conclusions have recently been presented by Dr. Lesné. From these conclusions it appears that no instance has been found in which this vaccine, introduced into the organism of a child, has been transformed and has produced virulent tuberculous lesions. Furthermore, these conclusions bring out that the B C G vaccine, ingested by the new-born, is generally well tolerated. As in all other vaccinations, one observes certain transient phenomena such as swollen glands. It is emphasized also that, after children in a suspected environment have received the B C G vaccine, they should be separated from such environment for at least six weeks. Mr. L. Bernard supplemented this report by the presentation of statistics on antituberculosis vaccination in the canton of Thann, which are the result of Mr. Kern's endeavors and which are entirely favorable to the use of the B C G vaccine.

Cacao as a Source of Vitamin A

From a paper by Prof. Marcel Labbé, in collaboration with Heim de Balzac and Lerat, presented at a meeting of the Société de thérapeutique, it appears that vitamin A, the factor of growth, is found in considerable amounts in the cacao seed and its extracted products. After identifying the vitamin, they sought to determine approximately, through experimentation, the proportion of vitamin A that cacao contains, on the basis

of the relative stimulation of growth in the white rat previously subjected to a deficient diet. Under these conditions the growth underwent a manifest acceleration (from 30 to 40 per cent). The health of the animals thus treated was preserved much longer than that of animals subjected to a diet deficient in vitamin A, but the appearance of xerophthalmic manifestations is not indefinitely retarded. These observations seem to indicate that in alcohol extracts of cacao and the pods of cacao seeds there is a "vitasterol" that may be converted into an active vitamin A. These facts seem to prove the value of adding cacao, and preparations that contain it, to the diet of children.

The Excess of Physicians in France

After many long discussions on the overcrowding of the medical profession in France, which is due to the excessive number of foreign physicians, more numerous here proportionately than in any other country of the world, the Academy of Medicine has adopted a formal resolution, proposed by Professor Balthazard in the name of the committee that the academy appointed to study the question. The resolution demands that parliament shall pass soon the Armbruster bill, which would provide that the government diploma, which alone grants the right to practice medicine in France, shall be accorded only to students who have pursued all their medical studies in France, and who presented, before entering on such studies, a French diploma covering the preliminary classical studies, without any credit being allowed for foreign diplomas. An exception, however, is made with respect to Roumanian students, a special convention having been entered into with Roumania, seventy years ago, which accords to French graduates the privilege of practicing in Roumania. Their number, however, must not exceed fifteen for any given year—from all the medical schools of France. Finally, in no case shall the university diploma, which is granted to foreigners who have pursued their medical studies in France, ever be transformed afterward into a government diploma, as occurs today, all too frequently, on the recommendation of foreign ambassadors.

The Medical Profession and Social Insurance

Increasing difficulties reveal every day the impossibility of applying the absurd social insurance law in its entirety—a law that is today disapproved even by its beneficiaries, although they acclaimed it loudly before its introduction. They now find that they are subjected to complicated and discouraging formalities, and that in case of illness they receive only insignificant cash benefits. But the members of parliament who supported the law as a political maneuver and who have succeeded in placing in the bureaus of the social insurance administration more than 60,000 of their political friends, stubbornly refuse to rescind the law, in spite of the multiplicity of demands. They accuse the physicians of being the chief authors of the trouble that has arisen in the functioning of the law, because the medical syndicates fought against and defeated the proposed adoption of a special tariff for the holders of social insurance. The insured pay the physicians the usual price for office consultations and domiciliary visits, for which the administration of the sick benefit funds grants them a certain fixed sum, which is always much less than they have expended. The members of parliament contend that the physicians have raised the price of their consultations since the social insurance law became effective. If there is any truth in the contention that physicians have raised their prices, it is explainable by the fact that, simultaneously with the passage of the social insurance law, parliament enacted laws providing for considerable increases in taxes and likewise permitted increases in house rent, whereby the professional expenses of physicians are augmented, which, in turn, compelled them to advance somewhat their fees, in the same manner as the merchants and manufacturers have raised their prices. The members of parliament, however, think they are all powerful and refuse to understand or to accept the inflexible nature of economic "laws," which are totally indifferent to the desires of the legislators. In the chamber of deputies and in the senate, the minister recently gave utterance to threats against the physicians, whom he persists in accusing of compromising the functioning of the law. He has announced that, if it should become necessary, he will create a special body of panel physicians, paid by the government, to treat the insured, which would result in the other physicians, not belonging to the panel, losing their patronage, which would bring ruin to large numbers of the physicians. It is not likely, however, that these threats can ever be carried out.

Chicagoan Presents a New Preventorium in the Pyrenees Region

At Arbonne, in Basses-Pyrénées, the infirmary and the medical services of a new preventorium were recently opened with ceremonies presided over by Mr. Léon Bérard, minister of justice. Madame Hannah Rosenthal, founder of the pavilion, turned over the keys to Mr. Bérard, who expressed his hearty thanks to Mr. Benjamin Rosenthal of Chicago, the great benefactor of Arbonne.

BERLIN

(From Our Regular Correspondent)

Aug. 31, 1931.

Drug Addiction in Germany

Privatdozent Kurt Pohlisch, of the Psychiatrische Universitätsklinik in Berlin, took upon himself the enormous task through exact control and comparison of all the prescriptions issued in Germany in 1928 for opiates to obtain an as nearly exact criterion as possible for the amount of drug addiction prevalent in Germany. Germany, as the leading country in the manufacture of opium preparations, is especially interested in ascertaining to what extent in its own territory the use of opium products may be regarded as coming under the head of drug addiction. The widely different estimates encountered are due chiefly to the difficulty of separating the part that may be considered misuse of opium from the part that constitutes necessary medical use. The German opium law furnishes the basis for the collection of reasonably reliable statistical material. In 1928 the German pharmacist, in supplying opium products containing morphine in excess of a restricted amount, was obliged to retain on file the prescription. The element of error in a computation based on the records of pharmacists will doubtless not be too low if placed at from 20 to 30 per cent. Morphine addicts who obtain their supply from month to month exclusively from bootleggers are rare in Germany. However, the amount of narcotics illegally sold in Germany is not always correctly estimated when the statements are based solely on the conditions in certain large cities. Generalizations as to conditions in the German reich as a whole are not always accurate if based solely on such limited observations. Illegal traffic in cocaine is, to be sure, rather common. The aforementioned collection of prescriptions concerns 3,500 persons with an average daily consumption of more than 0.1 Gm. of morphine hydrochloride, during the first six months of 1928. The other preparations are expressed in terms of morphine hydrochloride. Consequently, on the basis of 3,500 addicts, there are in Germany 0.56 addict per 10,000 of population, or, with readjustment in view of the aforementioned sources of error, 0.7 addict, and, taking only persons more than 20 years old, a little under 1.0 addict. Since, in 1928, chronic misuse of narcotics was rare in persons under 20 years of age, that group was not included in the population subject to addiction. The percentage of narcotic addicts is thus comparatively small. Of these 3,500 cases (with more than 0.1 Gm. of morphine hydrochloride a day), 1,276, or 37 per cent, are of persons using only from 0.1 to 0.2 Gm. a day. This group the clinician sees more rarely than the general practitioner, so that they, in contradistinction to the users of heavy doses, have been heretofore underestimated. Extremely high daily doses, especially those in excess of 0.2

Gm., are rare. The distribution of users according to sex shows for men an addiction of 0.69 per 10,000 and for women 0.46 per 10,000 of population; or, considering only the population more than 20 years of age, about 1.0 for men and 0.76 for women per 10,000 of population. It is well known that a high percentage of the persons engaged in the therapeutic services are morphine addicts. Drug addiction among the medical profession of Germany amounts to about 100 per 10,000, or about a hundred times that of the adult general population. Thus, one in every hundred physicians in Germany is a chronic addict to narcotics. This regrettably vast difference between nonphysicians and physicians is even more startling if one considers the high percentage of physicians among the users of large daily amounts and the large number addicted to both morphine and cocaine. In many instances (especially in the rural districts), groups of morphine addicts have been traced to the influence of resident physicians who were themselves addicts. In this connection, it is important to note that the frequency of addiction among physicians, in marked contrast to the behavior of the general population, is not essentially different in the rural districts from the incidence in the cities. The frequency of addiction, considered with reference to the population of the communes, shows that in cities with from 20,000 to 100,000 of population the addiction is about the average, namely, 0.56 per 10,000, but, on the other hand, about 1.0 per 10,000 for cities of more than 100,000 inhabitants, and only about 0.3 per 10,000 of population in communes with a population under 20,000. The predominance of the large cities is therefore distinctly apparent and finds its expression especially in the figures for Berlin, Hamburg and Munich, in all of which the proportion of addicts exceeds 1.0 per 10,000. The distribution of the opiates according to the type of the preparation shows, from an examination of the prescriptions, a predominance of morphine hydrochloride, which is in complete agreement with the observations in the clinics. In view of the wide distribution in other countries, especial interest attaches to diacetylmorphine (heroin). Among the studied collection of prescriptions it was recorded only ninety-nine times, thirty-three of which were in combination with other alkaloids.

Since the revised opium law went into effect, April 1, a considerable reduction in the misuse of narcotics may be expected. In any event, since that date the applications for withdrawal treatment in the psychiatric clinic of the Charité Hospital in Berlin have greatly increased, which fact is ascribed to the greater difficulty of procuring narcotics.

Increase of Embolism and Thrombosis After Operations

For years, the surgeons of all civilized countries have observed with anxiety the constantly increasing number of cases of embolism and thrombosis after operations, for which no explanation could be assigned. In turn, incriminating charges have been brought against the increased use of intravenous injections since the war; the increased ingestion of potassium salts as a consequence of a wider use of artificial fertilizers, and respiratory diseases, particularly influenza, which since 1918 has appeared in such a modified form, until a short time ago Prof. E. Payr, the director of the Chirurgische Universitäts-Klinik in Leipzig, gave expression to the suggestion that the damage might be caused by the vitiated atmosphere in the large cities, and, more particularly, by the exhaust gases from automotive vehicles, the dust and smoke evils, and the contamination of the air by harmful vapors given off by manufacturing plants. It has been noted that most of the cases of embolism and thrombosis arising in the clinic mentioned occur in city dwellers. Acting on Professor Payr's suggestion, Dr. Kuntzen conducted a series of animal experiments to discover whether or not, through chronic poisoning with the exhaust gases of automobiles, an increased disposition to thrombosis may be brought about, and in a recent number of the *Deutsche medizinische Wochenschrift* he reports his conclusions. The animals used for his experiments were rats and rabbits. Each day the animals were placed in cages having a cubic content of 110 liters. Exhaust gases were then conducted into the cages. The gas thus introduced each time was from 2 to 3 liters in amount, and the animals were subjected to such gases every day for from twenty to thirty minutes. This preliminary treatment of the animals was continued for two and one-half months, and they were then examined as to their predisposition to thrombosis. By an injection into the portal vein, a slight injury of the vessel wall was produced, which sufficed to cause the death of four of the fifteen treated rats, within from twenty-four to forty-eight hours, from thrombosis of the portal vein. Of the ten experimental animals which were not treated with gas but which were operated on in the same manner as the treated animals, not a single one died. There was therefore a distinct difference in the behavior of the gas treated animals, in that the animals exposed to the exhaust gases showed an increased disposition to thrombosis.

Hence it is possible that we have in the increasing amount of exhaust gases in the air that we breathe, to which a large proportion of the urban populations is exposed, an important factor in the increased incidence of embolism and thrombosis. The question as to how these damaging effects may be avoided promises to be even more difficult, especially as we do not yet know what ingredients of the gases produce the changes.

ITALY

(From Our Regular Correspondent)

Aug. 31, 1931.

The Third Congress of Bacteriology

The third Congresso nazionale di microbiologia was held recently in Milan, having been opened with an address by Prof. Serefino Belfanti, director of the Istituto sieroterapico milanese. Professor Montemartini presented a paper on the pathogenesis of the diseases of plants, in which he described the natural defenses of plants against parasites. The speaker took up then the fundamental unity of the pathology of all living things and stated that, by taking account of this fact, it will perchance be possible also in vegetable pathology to develop a direct pharmacotherapy toward the plant; namely, a true and proper curative intervention that will not have solely in view, as at present, the destruction of parasites.

Professor Pepeu discussed antidiphtheritic vaccination by means of anatoxin, and showed, on the basis of statistics that he had collected, that the method is harmless and gives evidence of a high vaccinating potency. As for the technic to be used, while conceding to the nasal route the great advantage of being more convenient, the speaker expressed a preference for the subcutaneous route, at least as long as an anatoxin with the present antigenic potency is employed. Prof. Maggiora Vergano confirmed these good results and stated that the statistics on the present immunization secured in Italy are rather favorable. He emphasized also the need of extending the provisions that the general management of the public health service has made in this connection.

Professor Puntoni, of the University of Rome, presented a communication on the topic "Results of Modern Research on the Biology of the Tubercle Bacillus." He said that the biologic test constitutes one of the most reliable aids for the diagnosis of tuberculosis; but in some cases (bacilli of slight experimental pathogenic potency) the cultural methods offer advantages (especially that of Hohn), and have also the great advantage of rapidity. As regards filtrability, the great majority of authors accept the belief in the existence of a filtrable form of the bacillus. Calmette's theory that the virus passes through the filter in the form of an ultravirus is confirmed by recent researches of Sanarelli and Alessandrini, who have brought about the passage of the virus through pouches of collodion impermeable to the diphtheritic and the tetanic toxins. The lymphoglandular congestion is the only lesion discoverable that is provoked by the ultravirus. Recently, Sanarelli and Ales-

sandrini obtained the classic picture of the disease only after the third passage of a series. These results give rise to the thought that possibly certain forms of human pathology still obscure may be ascribed to the ultravirus. The less toxic and pathogenic filtrable forms might traverse insidiously the placental barrier without arousing any defense reaction. Vaccination is possible only by the use of live bacilli. Hence, vaccination has been strengthened since the discovery of tubercle bacilli that have become permanently avirulent. To these belong, in addition to the Calmette vaccine, the horse bacillus of Vallée, the human bacillus of Maggiora and Ilvento, that of Puntoni and Sabbatucci, and still others. According to the speaker, stable avirulence brought about in the tubercle bacillus is not an exceptional fact, so that the knowledge of avirulent human strains will make it possible to attain that maximum degree of specificity to which allergic reactions must tend.

Professor Zironi spoke on specific hyperreactivity in infections, and explained sensitization to microbic antigens. The fact can be demonstrated experimentally and is of practical importance since it may explain the progress of the disease with a tumultuous course, the recurrences and unforeseen exacerbation.

The third day of the congress was devoted wholly to the study of blood groups. Professor Lattes presented a paper on the subject, in which he spoke on the quantitative variations of the group-specific properties. It has been observed, Professor Lattes stated, that the isoreactions that characterize a blood group are not quantitatively equal in all the individuals of the same group. The speaker studied the multifarious causes that influence such variations, dividing them into artificial, physiologic and pathologic, and advanced the theory that the exchange of the group-specific substances may have some relation with hematopoiesis and hemocateresis. Later studies will throw more light on the important question.

Centers for the Diagnosis and Treatment of Tumors

The general management of the public health service has sent to the prefects of the realm instructions in regard to the development and control of the services for the diagnosis and the treatment of tumors. Many of these services have been created through the initiative of the Lega contro il cancro. Others have been established by university institutes or hospital-organizing societies, but not always with equally good conceptions and aims. In accordance with the present regulations, they are all to be reorganized and improved in order that they may fulfil their chief purpose, which is the early diagnosis of tumors and their timely treatment.

Each center must have a definite governing body that will assume the responsibility for its management. That may be the province, the chief town or a hospital. The anticancer centers should be annexed to a large hospital, either special or general, but they should always be equipped in such a manner that they can apply all the forms of treatment that may be judged necessary in the various cases. Each center should have an outpatient department open to the public for free consultations. Each center will have a sanitary director, and each single service will have its specialist. The fundamental technical services must include: (1) microscopic establishment of the diagnosis by means of biopsy; (2) surgical treatments (the centers, in agreement with clinics or hospitals, will organize special hospital departments for the treatment of tumors; patients with a diagnosis of "operable malignant tumor" are considered by the minister of health as entitled to immediate admission, in view of the certainty of a fatal outcome if the intervention is postponed), and (3) physical therapy. Treatments with roentgen rays or with radium preparations will be free or in accordance with a tariff schedule agreed on, and will be given, either ambulatorily or with hospitalization, in public institutes well equipped for the purpose.

Each center will have a set of filing cabinets. The records will be arranged in such a manner as to facilitate the collection of material for statistical studies on tumors, and also with a view to keeping in touch with the patients after they have left the center.

Before a center can begin to function, the minister has ordered that it shall be inspected by the "provincial physician," to make sure that the center has the apartments, the personnel and the equipment required for the purpose.

Malaria in Children

At the session of the Calabria chapter of Medicina infantile, held at Cosenza, Prof. Rocco Jemma, clinical pediatrician of the University of Naples, discussed the subject of malaria in children. The speaker pointed out that the most cursory clinical examination and the discovery of the specific parasite had caused the erroneous conception to be abandoned that malaria is not a disease of children. The incorrect conception was based on the wrong idea that the child is a man in miniature, who must present for every disease the same symptoms that occur in the adult. The study of malaria in the child has been greatly advanced in recent years, and today it is well established that the disease presents in the child different aspects from those appearing in the adult. The symptomatology in the child is so varied and so complex as to necessitate special study, and constitutes one of the most recent acquisitions of pediatrics. In place of the conception that malaria does not attack the child has arisen the idea that it may be of congenital origin; namely, a manifestation of a child born of a malarious mother, the plasmodium having been directly transmitted through the placenta. Older clinical observations supported the view that the action of the plasmodium on the product of conception is indirect and is manifested by abortions, premature births and even dystrophia in children born at term. The speaker described the aspects of congenital malaria, which he considers easily possible, and then took up the clinical aspects presented by the child with malaria, whether the acute or the chronic form. In the acute form, all the ordinary symptomatology of an attack of malaria in the adult is replaced by varied and complex manifestations. The chill may be lacking or may be replaced by vomiting and convulsions. The febrile curve is not characteristic. Often there are manifestations affecting the digestive apparatus: thirst, indigestion, gastro-enteritis; the nervous system: meningism, disturbances of the cerebrospinal fluid; the urinary apparatus: transient albuminuria, acute interstitial nephritis, polyuria, or the cardiovascular and the respiratory apparatus. Professor Jemma considered also the atypical forms of malaria, and especially the latent forms, the malarial equivalents, and hypothermic malaria. The speaker drew then the clinical picture of chronic malaria, calling attention to the frequent changes affecting the visceral organs. Finally, he described the damaging effects that the disease may exert on the physical and the mental development of the child.

RIO DE JANEIRO

(From Our Regular Correspondent)

Sept. 15, 1931.

The Jacobaeus Operation

Dr. Pardo Mêo recently reported before the Sociedade de Medicina e Cirurgia of Campinas, State of São Paulo, a case in which he used the Jacobaeus method of cauterizing pleural adhesions as auxiliary to artificial pneumothorax in pulmonary tuberculosis. The results of collapse therapy depend largely on the presence or absence of pleural adhesions. Gravesen was able to observe, over periods varying from three to thirteen years after the operation was performed, a large number of patients in whom artificial pneumothorax had been used as treatment of pulmonary tuberculosis. Gravesen observed that complete pneumothorax in the absence of pleural adhesions gave recovery in 77 per cent of the cases. This proportion diminished to 33 per cent in cases of complete pneumothorax in which there were circumscribed adhesions, and to 11 per cent in cases of

incomplete pneumothorax performed in patients with broad pleural adhesions. In the Jacobaeus operation, the pleural adhesions may be resected without opening the thorax. The principle of the technic is based on the performance of two punctures, one of which is made with a straight trocar which permits the inspection of the pleural adhesions, through a pleuroscope. The other puncture is made with a flexible catheter through which the wire of the galvanocautery is passed. The adhesions are resected by cauterization under visual inspection through the pleuroscope. After the resection of the adhesions, the complete collapse of the lung under the action of the injected air is possible. The speaker presented before the audience a patient in whom a cavity in the upper extremity of the lung appeared in the roentgenogram greater after the performance of pneumothorax than before. This was due to the presence of broad adhesions from the lower to the upper part of the lung, which prevented the collapse and consequently the closure of the cavity. In the roentgenogram the adhesions looked like broad fibrous cords. The intrathoracic resection of the adhesions by the Jacobaeus method caused the gradual disappearance of the cavity and complete collapse of the lung in about four months. In the speaker's case, roentgenograms in series were taken so that the evolution and the regression of the disease could be observed. The speaker believes that his case is the first case of the Jacobaeus operation done in Brazil.

CAPE TOWN

(From Our Regular Correspondent)

Sept. 4, 1931.

The Stamina of White Persons Born in South Africa

Correspondence has appeared in the press concerning the stamina of Europeans born in this country. It is alleged that third generation South Africans are inferior in stamina to newcomers and that the best stocks are rapidly dying out. There is not sufficient evidence to enable an impartial critic to come to any worth-while conclusion. The only statistics of any real value are the earlier records of the medical inspection of schools in the Transvaal, and the trial survey conducted many years ago by Dr. Arnold when medical officer of health for the Transvaal. A report compiled in 1915 from data furnished by the examination of thousands of males between the ages of 18 and 45 shows that there is a high percentage of physical defectiveness among male Europeans. These data are not tabulated according to whether the examinees were native born or new comers. There are a few careful compilations, which seem to show that native born children of the third generation are physically inferior, especially in motor coordination, to first and second generation South African children, but they deal with too few individuals to be of real scientific value. Some years ago Dr. Macfarlane of Basutoland commented on the degeneracy he had observed in old pioneer families and suggested that the actinic light might have something to do with the deterioration noticeable among high veld children where the temperature and humidity are not much greater than in the coastal belt. Another suggestion is that native born South African white persons subsist largely on an unbalanced diet, in which carbohydrates predominate. It would be interesting to take a nonselected group of native born South Africans and compare them carefully with a nonselected group of first generation South Africans or with a group of immigrants. An investigation on these lines was undertaken by one of our universities. Unfortunately it has followed rather barren, anthropometric lines. None of the persons appear to have been properly examined with a view to discovering physical defects that might have accounted for fatigue.

THE HEALTH OF KENYA CHILDREN

Dr. Hargreaves, in his report on the health of Kenya school children, finds that with one exception Kenya European children surpass English children not only in weight but also in height. He remarks: "Climatic conditions in this country tend to produce a heavier and taller child than is usually met with in England." There is no warrant whatever for this assumption that "climatic conditions" have anything to do with this increase in bulk; the subject is still much too shrouded in mystery for any one to be dogmatic on the point, but plant experiment certainly seems to point to other factors, especially nutritional factors, as causing increasing bulk in first and second generation offspring. This bulkiness is particularly noticeable in seedling oxalis, grown from Brazilian seeds. Oxalis is a well acclimatized genus in South Africa, where about 200 different species are found, and the Brazilian types easily establish themselves; but they tend to bulk in the first generation and toward sterility in the third and subsequent generations. In the Transvaal there is evidence that while native born first generation boys are definitely heavier for their age than European children in the same age group, second and third generation native born are underweight on the Philadelphia scale. Hargreaves is definitely of opinion that "Kenya children of all ages are just as bright and receptive as English children of equal standing" but adds: "It is true that the average age of a class here is much higher than it should be, but this is explained by the fact that so many children start school at a late age." These statements do not contribute much light to the discussion.

Interesting data on this question should be obtained when the commission on poor whites reports. This commission has now been at work for three years and has carefully examined thousands of poor white children. The economic and psychologic sections of the report, which is now being prepared, are likely to be interesting, as the experts who have had charge of these aspects are well known for their scientific outlook and their careful methods of inquiry.

The Medical Congress

The twenty-fifth medical congress, and the fourth held under the auspices of the Medical Association of South Africa, opens next week at Johannesburg under the presidency of Dr. Francis Napier. It is the fourth congress to be held at Johannesburg, the first having been held there in 1898, when the Transvaal was still a land of adventure, unrest and plenty of money. These are times of depression, and it is unlikely that the entertainment offered to the delegates will be as sumptuous as then, when, it is told, Johannesburg hospitality went to the length of organizing a little stock exchange boom for the visitors. In those early days romance, in some form, clustered round every medical congress. This year's congress will be as sober and staid as its predecessor. The program appears overloaded with good things. The president, Dr. Napier, is one of the oldest and most respected physicians in this country; he is an ophthalmic surgeon and one of the first consultant specialists in the Transvaal. The local university will confer the honorary degree of LL.D. on him and on Dr. Orenstein, who is the president of the Medical Association of South Africa and a graduate of Columbia University.

Pneumonia Among Mine Workers

In medical circles on the Rand there are conflicting views on the subject of pneumonia among mine workers, which disease is economically one of the worst on the Reef, and the various mines are much interested in its prevention. For years a system of prophylactic vaccination has been followed, but now it is alleged to be of little value. Vaccination was almost universal on the Rand from 1917 to 1927, but today it is no longer so general, as many mine medical officers believe that vaccine prophylaxis is not a protection against the disease. Sir Spencer Lister, who introduced and perfected the pneumococcus vaccine on the Rand, still believes that the results do not warrant that view. Much of the information about the incidence of pneumonia is of small value because there are

some discrepancies in diagnosis, and no classification has been generally accepted. It is impossible to make out from the returns what is the incidence of influenzal bronchopneumonia compared with lobar pneumonia. The theory that pneumonia has changed its character on the Reef during the last ten years is one that seems to be popular, but there is no evidence in favor of it. That there is a variable mutability in the pneumococcus is of course known, but the extent of this variability, and its clinical significance, are matters about which far too little is known. An interesting fact is that although the incidence of the disease among mine natives appears to be high, the case mortality is decidedly low. This raises the suspicion that many cases of pneumonia are not really pneumonia but acute bronchitis. On the Rand the case mortality is 11; in Europe and America it is at least double that figure for patients of the same age as the average mine operative. In a recent number of the medical journal are reports of the animated discussions on pneumonia that have taken place at the meetings of the Mine Medical Officers Association.

American Degrees and Diplomas

The South African Medical Council has now gazetted regulations under which certain American degrees and diplomas are registrable. The anomaly that some degrees were registrable and some not was pointed out months ago, and the Council at once set about to rectify it. It now accepts also the certificate of the state board of examiners. Continental degrees also are registrable. Registration of these degrees, however, does not always or necessarily carry with it the right to practice medicine in the union. Such right is granted only when the holder is by reason of his medical degree permitted to practice in the country of origin of the degree and where such country gives reciprocity with the union. Formerly men who held a degree of M.D. of some American or continental university which did not entitle them to practice in this country were admitted to our register on their English or Scottish diplomas, but were not allowed to register their additional degrees. Now this bar has been removed, and a graduate may register his degree even when such degree does not, by itself, give him the right to practice here.

Marriages

PAUL BUDD MAGNUSON, Chicago, to Miss Laura Chandler Thompson of Lake Forest, Ill., in Barrington, September 26.

FREDERICK W. KERR, JR., Staten Island, N. Y., to Miss Dorothy Faunce of Haddon Heights, N. J., July 18.

WALTER D. BERRY, East Longmeadow, Mass., to Miss Maude A. Gilchrist-Stacy of Springfield, June 1.

JOHN FRANKLIN WOODWARD, JR., to Miss Isobel Robertson Carrington, both of New York, September 26.

COMER ROGER YOUMANS, Lumber City, Ga., to Miss Clarice Catherine Clark of Jacksonville, August 13.

LAWRENCE W. WELLER, Youngstown, Ohio, to Miss Florence M. Needham of Pittsburgh, August 1.

LEE WALLACE PEACOCK, Detroit, to Miss Lou Marie Ceglark in Bay City, Mich., September 24.

ALFRED GILES NEILL, Melcroft, Pa., to Miss Mabel Lessenberry of Milan, Tenn., August 12.

SAMUEL ALEXANDER VEST, Baltimore, to Miss Elise Thompson in Graham, N. C., August 1.

NATHAN J. BRAVERMAN to Miss Beatrice E. Hirschfield, both of Duluth, Minn., June 30.

GLENWAY ROTHENMAIER, Milwaukee, to Miss Alice Thompson of Madison, Wis., August 8.

JOHN WINSTON FOWLKES to Miss Lucy Burwell Allen, both of New York, September 26.

FRED Y. KETNER, Concord, N. C., to Miss Winnie D. Stokes of Newsom, August 3.

ALTON B. SIMONSON, Elsie, Mich., to Miss Achsah Loynes of Chapin, in August.

Deaths

Samuel Willis Prowse, Winnipeg, Man., Canada; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1896; F.R.C.S., Edinburgh, 1898; dean and professor of otology and laryngology, University of Manitoba Faculty of Medicine; member of the American College of Surgeons; aged 61; on the staff of the Winnipeg General Hospital, where he died, August 1, of heart disease.

Lorenzo Boorse ✠ Milwaukee; Rush Medical College, Chicago, 1881; member of the Central States Pediatric Society; emeritus professor of pediatrics, Marquette University School of Medicine; served during the World War; on the staff of the Milwaukee County General Hospital; aged 72; died, September 12, of arteriosclerosis and coronary thrombosis.

Weston Dodson Bayley ✠ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1888; formerly professor of neurology at his alma mater; aged 64; on the staffs of St. Luke's Hospital and the Pennsylvania Hospital, where he died, September 14, of heart disease, while under an anesthetic given for the extraction of teeth.

Alexander Jay Braden, Duluth, Minn.; University of Michigan Medical School, Ann Arbor, 1888; member of the Minnesota State Medical Association and the American College of Surgeons; formerly on the staffs of St. Luke's Hospital and St. Mary's Hospital; aged 70; died, September 9, of heart disease and pulmonary edema.

George Washington Campbell, Flora, Ill.; University of Tennessee College of Medicine, Memphis, 1909; member of the Illinois State Medical Society; bank president, president of the school board and formerly state senator; aged 45; died, May 9, at the Olney (Ill.) Sanitarium, following an operation for gallstones.

William W. Smithson ✠ Jackson, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; served during the World War; at one time executive secretary of the state board of health; on the staff of the Jackson Infirmary and formerly superintendent of the Mississippi Insane Hospital; aged 57; died, September 9.

William Aaron Ewing ✠ Dayton, Ohio; Jefferson Medical College of Philadelphia, 1900; member of the American College of Surgeons; past president of the Montgomery County Medical Society; aged 55; visiting surgeon to the Miami Valley Hospital, where he died, September 16, of streptococcic poisoning.

Eugene Jones ✠ Kensington, Md.; Baltimore Medical College, 1896; past president of the Montgomery County Medical Society; formerly member of the state board of health; state senator, 1914-1918, 1922-1930; aged 58; died, September 22, in the Garfield Hospital, Washington, D. C., of diabetes mellitus.

Arthur Gustavus Bosler ✠ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; served during the World War; aged 62; on the staffs of the Lakeside Hospital and the Englewood Hospital, where he died, September 18, of cerebral hemorrhage.

Carl William Smith, Princeton, W. Va.; University of Tennessee College of Medicine, Memphis, 1919; member of the West Virginia State Medical Association; medical superintendent of the Mercer Memorial Hospital; aged 34; died, September 1, in a hospital at Asheville, N. C., of pneumonia.

Henry Tecle Nicolle ✠ Baton Rouge, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1908; served during the World War; on the staff of Our Lady of the Lake Sanitarium; aged 49; died suddenly, August 3, of cerebral hemorrhage.

George Alexander Budd, Frankfort, Ky.; Western Reserve University Medical Department, Cleveland, 1893; member of the Kentucky State Medical Association; past president of the Franklin County Medical Society; aged 60; died, September 15, of angina pectoris.

Eugene Hilliard Morgan, Granbury, Texas; Southwestern University Medical College, Dallas, 1904; Medical Department of the Tulane University of Louisiana, New Orleans, 1906; aged 65; died, September 9, at Fort Worth, of carcinoma of the pancreas.

Thomas Farley Joseph Hanlon, New York; University of Pennsylvania School of Medicine, Philadelphia, 1917; served during the World War; aged 40; died, September 16, at his summer residence in West Hampton Beach, L. I., of cerebral hemorrhage.

Harry Elliott ✠ Brazil, Ind.; Medical College of Indiana, Indianapolis, 1904; member of the American College of Surgeons; served during the World War; chief of staff and surgeon to the Clay County Hospital; aged 52; died, September 24.

Edmund Dempster Brant, Canton, Ohio; Bellevue Hospital Medical College, New York, 1891; member of the Ohio State Medical Association; aged 72; died, September 24, of fracture of the hip and arteriosclerosis.

Stephen Y. Howell, Buffalo; Medical Department of Columbia College, New York, 1880; Hahnemann Medical College of Philadelphia, 1882; aged 77; died, September 24, of angina pectoris and arteriosclerosis.

James Edward Taylor, Redding, Calif.; Medical Department of the University of California, 1899; member of the California Medical Association; aged 58; died, August 3, of angina pectoris and arteriosclerosis.

William Allen Dixon, Decatur, Ill.; Kentucky School of Medicine, Louisville, 1892; Illinois Medical College, Chicago, 1895; formerly member of the board of health; aged 65; died, September 11, of diabetes mellitus.

Vincenzo Guiseppe Fabiani, Philadelphia; Royal University of Naples Faculty of Medicine and Surgery, Naples, Italy, 1889; aged 67; died, September 2, in St. Agnes' Hospital, of a self-inflicted bullet wound.

Frederick Welton Brownfield ✠ Golden, Colo.; St. Louis College of Physicians and Surgeons, 1919; aged 45; died, June 16, in St. Anthony's Hospital, Denver, of chronic cholecystitis and appendicitis.

Theodore Harvey Kellogg ✠ New York; Bellevue Hospital Medical College, New York, 1865; member of the American Psychiatric Association; aged 90; died, September 20, of arteriosclerosis.

Mark Alward, Portland, Maine; University of Buffalo School of Medicine, 1887; member of the Maine Medical Association; aged 78; died, August 17, of cerebral hemorrhage and arteriosclerosis.

William Ross Taylor, Morral, Ohio; College of Physicians and Surgeons, Baltimore, 1884; member of the Ohio State Medical Association; aged 81; died, September 18, of organic heart disease.

Francis Marion Ingalls ✠ Highland Park, Ill.; Rush Medical College, Chicago, 1888; aged 71; on the staff of the Highland Park Hospital, where he died, September 22, of cholecystitis.

William Warren Furber, Cottage Grove, Minn.; Rush Medical College, Chicago, 1878; also a lawyer and justice of the peace; aged 75; died, September 8, in St. Luke's Hospital, St. Paul.

Leonard Cassell Berry, Lexington, Ky.; University of Louisville School of Medicine, 1900; aged 56; died, September 22, in a local hospital, of cerebral hemorrhage and arteriosclerosis.

George W. Rezanka ✠ Chicago; Rush Medical College, Chicago, 1893; on the staff of St. Anthony's Hospital; aged 62; died, August 21, in his home at Oak Park, Ill., of angina pectoris.

George Eckles Neal, Manchester, Ohio; Cincinnati College of Medicine and Surgery, 1900; member of the Ohio State Medical Association; aged 61; died, September 19, of pneumonia

Henry Baldwin Lloyd, Evanston, Ill.; Tennessee Medical College, Knoxville, 1899; aged 61; died, August 28, in the Evanston Hospital, of mesenteric thrombosis and peritonitis.

William J. Whalen, Paterson, N. J.; University College of Medicine, Richmond, 1909; served during the World War; aged 46; died, September 15, of acute cardiac dilatation.

Joseph Benjamin Goldberg, Chicago; Rush Medical College, Chicago, 1902; on the staff of the Frances E. Willard Hospital; aged 55; died, September 25, of carcinoma.

Levi J. Stump, Pocahontas, Va.; Medical College of Virginia, Richmond, 1883; member of the Medical Society of Virginia; aged 71; died, August 31, of myocarditis.

William Joseph Morlan Smiser, Skylight, Ky.; Kentucky School of Medicine, Louisville, 1884; aged 74; died, September 3, of organic heart lesion and pulmonary edema.

Michael S. Creamer, Los Angeles; Kentucky School of Medicine, Louisville, 1906; aged 54; died, August 12, of acute pericarditis and sarcoma of the mediastinum.

Max Fischman, Yonkers, N. Y.; University and Bellevue Hospital Medical College, New York, 1908; aged 46; died, September 23, of a self-inflicted bullet wound.

John Jay Still, Los Angeles; Bellevue Hospital Medical College, New York, 1885; aged 76; died, August 22, of cerebral hemorrhage and intestinal obstruction.

James H. Bartley, Providence, R. I.; Detroit Medical College, 1882; member of the Rhode Island Medical Society; aged 74; died, August 29, of angina pectoris.

Elmer Ellsworth Lytle ✠ Bothell, Wash.; Rush Medical College, Chicago, 1887; aged 69; died, August 17, in Seattle, of cerebral thrombosis and hypertension.

Franklin Henry Clark, Cleveland; Medical Department of the University of the City of New York, 1879; aged 73; died, September 10, of cerebral hemorrhage.

Mary Ellen Bryan, Ogdensburg, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1887; aged 76; died, August 26, of cerebral hemorrhage.

Nathan Weidenthal, East Cleveland, Ohio; University of Wooster Medical Department, Cleveland, 1878; aged 76; died, September 7, of arteriosclerosis.

Charles Wesley Carr, Denison, Iowa; Rush Medical College, Chicago, 1890; bank president; aged 66; died suddenly, in September, of heart disease.

Adam Adolf Haas ✠ San Francisco; Chicago College of Medicine and Surgery, 1914; aged 58; died, July 26, of coronary sclerosis and occlusion.

Clarence Everett Cobb, Panama, N. Y.; Jefferson Medical College of Philadelphia, 1916; aged 50; died, September 4, of pulmonary tuberculosis.

Charles T. McMurtrey, Kidder, Mo.; Northwestern Medical College, St. Joseph, 1894; bank president; aged 60; died, August 21, of carcinoma.

Rodolph Rutledge, Springfield, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 78; died, August 28, in Springboro, of angina pectoris.

Ezra Theodore Campbell, Welaka, Fla.; Columbian University Medical Department, Washington, D. C., 1888; aged 67; died, September 21.

Joseph L. Davis, Winchester, Tenn.; University of Nashville Medical Department, 1890; aged 71; died, September 9, of cerebral hemorrhage.

John C. Cain, Miami, Ind.; Medical College of Indiana, Indianapolis, 1880; aged 76; died, September 16, of carcinoma of the urinary bladder.

Felix Charles Guilbeau, Sunset, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1904; aged 53; died, July 13.

John Snook, Berkeley, Calif.; California Medical College, 1886; University of Illinois College of Medicine, Chicago, 1904; aged 70; died, June 16.

Philip B. Swearingen ✠ Tacoma, Wash.; Missouri Medical College, St. Louis, 1887; aged 68; died, August 12, of cerebral hemorrhage.

Walter John Kidd, Burlington, Ind.; Indiana Eclectic Medical College, Indianapolis, 1885; aged 83; died, September 5, of diabetes mellitus.

James R. Kenton ✠ Raymond, Ill.; Beaumont Hospital Medical College, St. Louis, 1899; aged 61; died, September 22, of carcinoma.

Charles William Anderson, Frankfort, Ky.; Louisville National Medical College, 1902; aged 67; died, August 25, of prostatic disease.

Charles Neree Beauchemin, Yamachiche, Que., Canada; Laval University Faculty of Medicine, Quebec, 1874; aged 81; died, June 29.

Reuben Adcox, St. Louis; American Medical College, St. Louis, 1910; aged 69; died, September 30, of a self-inflicted bullet wound.

A. M. Speer, Macon, Ga.; University of Georgia Medical Department, Augusta, 1884; aged 69; died, June 24, of myocarditis.

Burwell Atkinson, Waverly, Ga.; Atlanta Medical College, 1876; formerly state senator; aged 83; died, September 22, of senility.

John R. Lazenby, Lawrenceburg, Ind. (licensed, Indiana, 1897); aged 87; died, August 17, of arteriosclerosis.

Benjamin Y. Boyd, Dallas, Texas; Medical College of Ohio, Cincinnati, 1886; aged 72; died, July 21.

Thomas C. Kirven, Jackson, Ala.; Louisville (Ky.) Medical College, 1893; aged 72; died, August 10.

William C. Hite, Nashville, Tenn. (licensed, Tennessee, 1891); aged 80; died, July 26.

Bureau of Investigation

HORACE IPPELTHWAITE, ALIAS DANIEL DAVENPORT, M.D., PH.D., F.Z.S.

A Picturesque Impostor Who Works with Motion Picture Films and Fictitious Degrees

A few months ago, Chicago newspapers carried advertisements of a motion picture entitled, "Jungle Hazards." It was sensationally described as the "Wildest Wild Animal Motion Picture Ever Filmed." It was said to depict "the Love Life of Cannibals" and it was claimed that in its making, fifteen human lives had been lost! The film was alleged to have been made by "Dr. Daniel Davenport, M.D., Ph.D., F.Z.S.," and was described as "The first full-length motion picture to be made in West Africa." "Davenport" was also featured in the newspaper advertisements as "appearing in person" at the showing of the film. He was characterized in the advertisements as a "Famous Explorer, Adventurer."

At the showing of the film, there was sold an elaborate "Souvenir Booklet" entitled, "Jungle Hazards" and described as "The key to the first complete film taken in West Africa" and as "a complete description of the tragic expedition survived only by Dr. Daniel Davenport." As a final artistic touch, it was "Personally Autographed by the Explorer." Each page of the booklet measured about eight inches by ten inches, and one entire page was taken up by a large size photograph of Daniel Davenport, showing the gentleman rigged out in the most approved African-explorer style—pith helmet, puggree, briar pipe, etc.

At this point, it is necessary to mention that the name, Daniel Davenport, is apparently an assumed one. The Chicago Better Business Bureau, at the time that Davenport was holding forth in Chicago, got in touch with Davenport and asked him to explain certain claims that he was making. The man had declared that he was a graduate of McGill University, class of 1913, but the Chicago Better Business Bureau told him that the American Medical Association had reported that no man of this name was a graduate of McGill University, either in 1913 or any other date. "Davenport" is then said to have told the Bureau that his real name was Horace Ippelthwaite. Further correspondence of the Bureau of Investigation of the American Medical Association, with the Dean of McGill University Faculty of Medicine brought out the fact that no man by the name of Horace Ippelthwaite was ever a student or a graduate of McGill University.

The "Souvenir Booklet" contained a foreword under the heading, "The Lone Survivor," purporting to have been written by "Sydney N. Lord, M.D., University of Toronto." Dr. Sydney N. Lord is a reputable physician and a graduate of the Ohio State University College of Medicine, with a Bachelor of Science degree from the University of Toronto. He states that he did not write the matter that appears under his name and has not the slightest knowledge of the truth of any of the statements contained in his supposed foreword. Dr. Lord had met Davenport and his experience with the man—involving a loss of both confidence and money—need not be gone into in detail at this time. The foreword in question read in part:

> "Dr. Daniel Davenport, M.D., Ph.D., F.Z.S., was born in Moosejaw, Saskatchewan, Canada, in 1889. He was graduated from McGill University, later taking courses at Oxford, The Sorbonne, Paris, and Faculte de Bordeaux.
>
> "With the outbreak of hostilities in the great war, Dr. Davenport immediately was commissioned a lieutenant in the Royal Medical Corps and served more than four years at the front and nearby base hospitals."

In order to check up on these claims, the Bureau of Investigation wrote to a physician in Moose Jaw, who has lived in that town for nearly thirty years, and also wrote to the Police Department of the same town. Neither the physician nor the Chief of Police was able to identify either Daniel Davenport or Horace Ippelthwaite as a native of Moose Jaw, although the Chief of Police stated that a man answering Davenport's description had come to Moose Jaw about two years previously, at which time he had rented a hall and, under the name "Dr. Davenport," gave "some form of a lecture."

In order to check on the claim that Davenport had held a commission as lieutenant in the Royal Medical Corps, a letter was written to the Royal Army Medical Corps of the British War Office in London by the Bureau of Investigation. This brought the information that they had no record of either Daniel Davenport or Horace Ippelthwaite as having been a member of His Majesty's forces. A further claim made in the Davenport advertising was:

> "Late in 1924, Dr. Louis Neuman, famous Belgian bacteriologist, was chosen by the Societe Bacteriologique de Belge [*sic!*] to conduct a survey of tsetse fly infected sections of the Congo in an effort to reduce the ravages of the dreaded sleeping sickness. He chose as his aides Drs. Jacques Maus, of Antwerp, and Daniel Davenport."

The Bureau of Investigation wrote to the well-known Belgian physician, Dr. Jules Voncken of the *Archives Medicales Belges*. Dr. Voncken replied that he was unable to find any information in relation to the alleged expedition by the "famous Belgian bacteriologist, Dr. Louis Neuman," nor was he able to discover that there was any Society of Bacteriology of Belgium (Société Bactériologie de Belgique).

DR. DANIEL DAVENPORT

SOLE SURVIVOR OF THE DAVENPORT-AFRICAN EXPEDITION PRESENTS

"JUNGLE HAZARDS"

AN AMAZING AFRICAN EDUCATIONAL FILM

Dr. Daniel Davenport, M. D., Ph. D., F. Z. S., was sent late in 1924 by the Societe Bacteriologique de Belge, into the Belgian Congo to conduct a tsetse fly (sleeping sickness) survey of that territory, accompanied by two colleagues. At the invitation of other governments, they extended their work into the Cameroons, French Equatorial Africa, Nigeria, the Sudan, Angola and Rhodesia.

Dr. Jacques Maus, of Antwerp, another of the group had been chosen as photographer for the expedition but succumbed to yellow fever as the party was entering the jungle. Dr. Louis Neuman, of Brussels was gored to death in 1929 causing Dr. Davenport, the only survivor, to return late that year.

This intrepid scientist brought back many rare specimens of wild life for various zoos and museums and the first full length motion picture ever made on the West Coast of Africa, mostly in the territory alluded to by Carl Akeley as "The White Man's Grave."

This photographic record of hitherto unpenetrated recesses of the jungle depicts much new scientific knowledge concerning wild animals and cannibal tribes. Hordes of wild beasts, (more than 118 species) Parade before the camera in spectacular manner. Many were captured alive and some killed for museums. These pictures include the first of an army of driver ants, destroying every living thing that crosses its path. Lions that climb trees, dogs that chased a rhinoceros, and a white rhinoceros which was stopped only a few feet from the camera are but a few of the thrilling scenes embraced in this epic picture which is captioned "JUNGLE HAZARDS."

Among other rare scenes are those of pigmy and cannibal tribes in rituals which have been caught by the camera for the first time and this was done without the knowledge of the natives. In all these scenes which are included in the 10,000 feet of fast action film, the natives and wild beasts themselves are the actors, no effort having been made by the scientists to thrust a ridiculous plot into the action. It is clean, authentic and sensationally educational.

Dr. Davenport was born in Moosejaw, Sask., Canada, was graduated from McGill University, later taking courses in England and France. As a lecturer he has the knack of taking you right into the jungle with him. His adventurous career gives him a background rarely found in connection with the producer of a motion picture.

He was a member of the British Medical Corps at the front in the late war for four years. Next he was sent as medical aide to Lord Carnarvon at Luxor when the tomb of Tut-Ankh-Amen was discovered. Later he was a member of the Haley expedition to the South Seas.

Critics have been almost unanimous in declaring that "Jungle Hazards" is on a par with Martin Johnson's magnificent film "SIMBA"

Photographic reproduction greatly reduced (the original measured about 8 inches by 10 inches) of an advertising circular featuring Davenport and "Jungle Hazards."

In some of the other Davenport advertising, it was claimed that the film, "Jungle Hazards," had been endorsed (1) by the Maryland Academy of Sciences, (2) by the Western Reserve University, and (3) by the Boy Scouts of America. Letters addressed to each of these institutions by the Bureau of Investigation brought replies, in each case, that no such endorsements had been given.

Intelligent readers of newspapers must long since have been convinced that many of the so-called reviews of motion pictures are hopelessly uncritical. This conviction is likely to be further strengthened by reading what, in the Davenport advertising, are alleged to be some of the reviews of Davenport's film. Under the heading, "What the Critics Say of 'Jungle Hazards,'" we read:

> "No hokum, no theme song, no wishy-washy Hollywood fakery, just an honest-to-goodness motion picture made by a trio of brave men."—Washington (D. C.) *Post*.
>
> "A powerful reproduction of a tragic expedition. Quite the most realistic motion picture in years. Don't miss this one."—Toronto (Canada) *Star*.
>
> "Dr. Davenport has brought us the greatest substitute yet for an actual trip through the jungles of Equatorial West Africa.

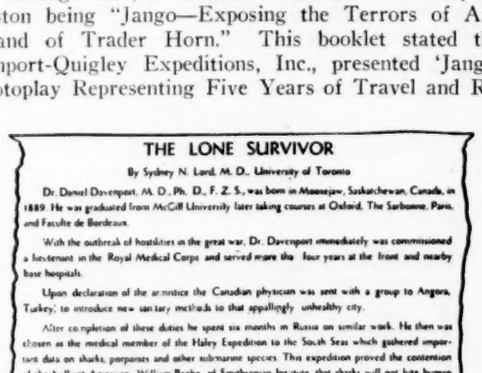
An amazing film and a remarkably fine lecturer."—Baltimore (Md.) *Sun.*

"'Jungle Hazards,' for sheer reality and sensational interest is among the three best pictures reviewed by this writer in the past year. Dr. Davenport's monologue puts it in a class even above this."—Columbus (Ohio) *Press.*

"Truth is stranger than fiction and remarkably so in Dr. Davenport's extraordinary picture, 'Jungle Hazards,' which brings scenes where the unexpected abounds and from which a wealth of knowledge of other worlds may be gleaned."—Pittsburgh (Pa.) *Press.*

"'Jungle Hazards,' though it crowds the screen with animals comes rather under the head of adventure and for its thrills of stark reality and danger compares with that heroic picture, 'The Ascent of Mount Everest.'"—Rochester (N. Y.) *Times-Union.*

It also appears from investigation that a year and a half ago, Davenport was working a similar scheme in Boston. Papers in that city carried an advertisement of a motion picture entitled, "Jango, with Dr. Davenport and Cannibals in Person." As in the Chicago case, a "Souvenir Booklet" was sold, the title in Boston being "Jango—Exposing the Terrors of Africa in the Land of Trader Horn." This booklet stated that the "Davenport-Quigley Expeditions, Inc., presented 'Jango'" as "a Photoplay Representing Five Years of Travel and Research



THE LONE SURVIVOR

By Sydney N. Lord, M. D., University of Toronto

Dr. Daniel Davenport, M. D., Ph. D., F. Z. S., was born in Moosejaw, Saskatchewan, Canada, in 1889. He was graduated from McGill University later taking courses at Oxford, The Sorbonne, Paris, and Faculte de Bordeaux.

With the outbreak of hostilities in the great war, Dr. Davenport immediately was commissioned a lieutenant in the Royal Medical Corps and served more tha four years at the front and nearby base hospitals.

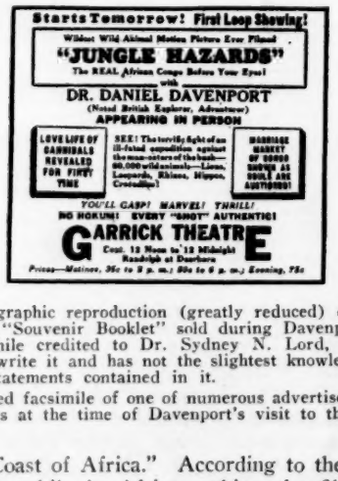
Upon declaration of the armistice the Canadian physician was sent with a group to Angora, Turkey, to introduce new sanitary methods to that appallingly unhealthy city.

After completion of these duties he spent six months in Russia on similar work. He then was chosen as the medical member of the Haley Expedition to the South Seas which gathered important data on sharks, porpoises and other submarine species. This expedition proved the contention of the brilliant American, William Beebe, of Smithsonian Institute, that sharks will not bite human beings while the later is in motion.

DISCOVERED KING TUT

Dr. Davenport next accompanied Lord Carnarvon to Luxor where the mummy of King Tutankh-amen was discovered. He was with the noted Egyptologist for eight months.

Late in 1924, Dr. Louis Neuman, famous Belgian bacteriologist, was chosen by the Societe Bacteriologique de Belge to conduct a survey of Tsetse fly infected sections of the Congo in an effort to reduce the ravages of the dreaded sleeping sickness. He choose as his aides Drs. Jacques Maus, of Antwerp, and Daniel Davenport.



Starts Tomorrow! First Loop Showing!

Wildest Wild Animal Motion Picture Ever Filmed

"JUNGLE HAZARDS"

The REAL African Congo Before Your Eyes!

with

DR. DANIEL DAVENPORT

(Noted British Explorer, Adventurer)

APPEARING IN PERSON

LOVE LIFE OF CANNIBALS REVEALED FOR FIRST TIME

SEE! The terrific fight of an ill-fated expedition against the man-eaters of the bush—60,000 wild animals—Lions, Leopards, Rhinos, Hippos, Crocodiles!

MARRIAGE MARKET OF HORRID SAVAGES SHOWN AS NEVER ARE AUTHORIZED!

YOU'LL GASP! MARVEL! THRILL!

NO HOKUM! EVERY "SHOT" AUTHENTIC!

GARRICK THEATRE

Cont. 12 Noon to 12 Midnight

Randolph at Dearborn

Prices—Matinee, 35c to 2 p. m.; 50c to 6 p. m.; Evening, 75c

Above: Photographic reproduction (greatly reduced) of a part of the foreword in the "Souvenir Booklet" sold during Davenport's appearance in Chicago. While credited to Dr. Sydney N. Lord, Dr. Lord states that he did not write it and has not the slightest knowledge of the truth of any of the statements contained in it.

Below: Reduced facsimile of one of numerous advertisements appearing in Chicago papers at the time of Davenport's visit to that city.

on the West Coast of Africa." According to the same booklet Dr. Davenport, while in Africa making the film, was bitten on the shin by a cobra and was incapacitated for about six weeks. During most of this time, the story continued, he was carried by two faithful cannibal tribesmen—Massamba and Mb'wanga. The Souvenir Booklet contained pictures of these two "cannibals" and stated that Davenport, as a reward for the faithfulness of these two human flesh-eaters, had brought them to the United States.

The Boston Better Business Bureau in its Bulletin of March 26, 1930, exposed the spuriousness of this motion picture scheme and stated that on the last day of the showing of Davenport's picture in Boston, the man who appeared in person as "Malamba, the Cannibal," brought suit against the Davenport-Quigley company for back wages. The "cannibal" is said to have stated that he was, in fact, a janitor from Harlem, New York, where he had met Davenport; and that the motion picture itself was not produced in the African jungle. The courts, it seems, fined the Davenport-Quigley company $50 whereupon the Harlem janitor filed a civil suit for collection of about $900 wages, which he claimed were due him. The janitor was further said to have declared that the film was manufactured largely from lengths of various jungle films, combined with pictures of a small animal circus, which was set up on location in the Bronx!

The Attorney General's office of New York State in December, 1929, is reported to have started an action against the Davenport-Quigley Expeditions, Inc., in connection with the sale of stock and for the purpose of preventing further subscriptions. It was stated, according to the Boston Better Business Bureau, that although seventy-five thousand shares of stock were said to have been sold, the company's assets were found to consist of the film called "Jango" and $20 in cash.

The "Jango" souvenir booklet was much more profusely illustrated than the "Jungle Hazards" booklet. In both of them Davenport's alleged associates in the Belgian-Congo expedition —Drs. Louis Neumann and Jacques Maus—were said to have died; the latter of yellow fever at the outset of the expedition, while Dr. Neumann was gored to death by a rhinoceros in 1929, "causing Dr. Davenport, the only survivor, to return late that year." The "Jango" booklet, possibly with the idea of lending an air of verisimilitude to an otherwise bald and unconvincing tale, shows a "rhino in full charge." The inference is that Davenport took the photograph. A national authority on these things, however, declares that the picture is a well-known one, taken some years ago by the English exporer and artist-lecturer, Major Arthur Radclyffe Dugmore. According to the same authority, some of the other "wild animal" pictures appearing in the "Jango" booklet were actually taken in New York State. The "Jango" booklet also featured a full-page photographic reproduction of a letter on the stationery of the Belgian Consulate in New York, addressed to Davenport and puffing his film. It was signed by a person calling himself "Acting Chancellor" of the Consulate. The facts, according to the vice-consul for Belgium, are that the person who wrote the letter was not Acting Chancellor, had no authority to write or sign any letters in the Belgian Consulate of New York, and lost his position following the disclosure by the officials of what he had done!

Ippelthwaite, alias Davenport, is probably still working his scheme in some parts of the United States, either under one of these names or some other. If he is, and he is still attempting to drag down the good name of medicine by claiming that he is a physician, it is to be hoped that the local medical profession will expose the pretensions of this impostor.

Correspondence

THE SOCIAL HISTORY OF THE PATIENT

To the Editor:—The clinical biography of ward patients in hospitals is normally constituted of three parts: (*a*) the purely medical and nursing bedside record, which is an historical outline in syllogistic order of the progress of the malady from the pathologic point of view, in accordance with the observations of the patient and those who take care of him; (*b*) the laboratory record, which provides clues to the solution of the problem which only the exact sciences can furnish, and (*c*) the social record, which provides the social background for the scientific picture and tells of factors which do not lend themselves to exact scientific treatment but which in a real way influence the origin, clinical course and outcome of the disease. That these three essential parts of the patient's record overlap and may not be considered independently by the medical scientist on whom the solution of the medical problem depends, or for that matter by the social worker, is one of the great discoveries (or is it a rediscovery?) of modern medicine. In actual hospital practice, however, does the physician inform himself (and others) of social factors influencing the patient's illness as an aid to the exercise of his diagnostic and therapeutic skill? Is it generally recognized that social treatment and medical treatment are interdependent and that one reinforces the other in the struggle that the patient is making for life?

In how many hospitals are the social and medical histories kept together and brought to the notice of the visiting and resident medical staff when the patient is submitted to them by the governing authorities of the hospital (and by the community) for study? How close is the cooperation between physician and social worker in the management of ward cases? In the operating room, as the patient in his artificially peaceful slumber is wheeled in, unconscious, ready for the specialist to demonstrate his mechanical skill, the doctor will read a summary of the medical history and present it in the form of a problem in pure science. But how often, if ever, does he read out those social facts which had so much to do with the plight of the patient. "Gentlemen," one can almost hear him saying to the assembled students in a sympathetic voice that indicates concern, "this is an unfortunate working man of middle age, the father of five dependent young children whose mother has been broken down by the illness of the patient. We hope that we are doing the right thing by operating in this instance. If he does not survive this operation or if this operation should prove to be unsuccessful. . . ." Among other things the reading of social histories in this manner might have the effect of increased consultation service for the patient, in the anxiety of the specialist to divide and share the responsibility for a surgical operation which, under any circumstances, should always be a matter of grave concern to every one and not only to the patient. Other and equally obvious benefits might come from deeper consideration of social factors.

Or, in the postmortem room where the failures of the medical clinic are examined critically—again from the mechanical point of view—one can imagine the far reaching effects of a reading of the social history in addition to the cold scientific facts furnished by instruments of precision and the interpretation of the results which they make possible. A sobering experience for the student might be the least that we could expect from his acquaintance with the social background of his interesting "case"!

E. M. BLUESTONE, M.D.,
Montefiore Hospital for
Chronic Diseases,
New York.

"TRANSMISSION OF TUBERCULOSIS"

To the Editor:—The paper of Dr. J. Arthur Myers (THE JOURNAL, August 1) does not bring out any recent facts. It has for years been known that an individual or race free from evidence of having been infected falls ready prey to the infection when it does occur. For this reason every effort is being put forth to protect the child from exposure to massive infection. The students of medicine or nursing who do not react to tuberculin are children so far as tuberculosis is concerned. The mistake made in the cases cited by Dr. Myers was in not applying this knowledge of well established facts. The doctor would not permit a child to be intimately exposed to an open case of tuberculosis. Why, then, permit the exposure of those who are in the child's class?

To treat every case of tuberculosis as dangerously contagious would be an undertaking of a magnitude and futility second only to treating every incipient case in a sanatorium as some experts advocate.

ELI GRIMES, M.D., Des Moines, Iowa.

[NOTE.—The letter of Dr. Grimes was referred to Dr. Myers, who replies:]

To the Editor—Dr. Grimes's statement "The students of medicine or nursing who do not react to tuberculin are children so far as tuberculosis is concerned" is most significant. "Why then permit the exposure of those who are in the child's class?" If he will only carry it a little further and make it apply to all persons who react negatively to tuberculin and still a bit further to apply to everybody, whether children or adults, whether positive or negative reactors to tuberculin, he will be ready to make the same statement as Dr. Allen K. Krause when he said "The only rational attitude is to protect all human beings, of whatever age, against exposure." If he will then shout this from the housetops along with the others who believe with him and will devise means of preventing the spread of tubercle bacilli, he will bring about the most rapid control of tuberculosis that the world has ever experienced.

I agree most heartily with Dr. Grimes except on the point of futility of treating every case of tuberculosis as dangerously contagious. By this I assume that he means every so-called open case. It is an undertaking of great magnitude, and the equipment to put it into practice will require considerable time. The best place to start is in our teaching institutions where the students of nursing and medicine are in need of protection against tuberculosis. To say that it is futile to attempt to treat every open case of tuberculosis as dangerously contagious is merely to repeat what has been said at the inception of every campaign against other contagious diseases.

J. ARTHUR MYERS, M.D., Minneapolis.

HEAT PROSTRATION AND DEHYDRATION

To the Editor:—Concerning your pertinent editorial on the importance of water (THE JOURNAL, August 15, p. 465), the following case report is suggestive:

W. G. F., a banker, aged 67, height 6 feet 1 inch (185 cm.), weight 207 pounds (94 Kg.), a native of Scotland, ruddy, of vigorous build, with a good family and personal history, collapsed as he was sitting in the barber's chair, August 26.

Southern California was suffering a period of extremely high temperatures and a relatively low degree of humidity. The patient had come up from the beach the night before and had slept little that night on account of the heat. In the morning he drove to Hemet, approximately 40 miles, and spent several hours walking through his orange grove a number of miles in a temperature which must have approximated from 110 to 120 F. He said that he drank approximately five glasses of water during that time. He returned to Riverside soon after noon and collapsed at about 2 p. m.

At the time of his sudden attack of unconsciousness, he had a profuse discharge from the bowels and made an effort to vomit. He was taken to the Community Hospital by ambulance, accompanied by Dr. N. K. Bear. Dr. Bear reports finding him pulseless and practically not breathing. I saw him soon after his arrival, fifteen or twenty minutes after the onset of the attack.

His face and finger nails were cyanotic. He was perspiring profusely and was cold and clammy. He was breathing heavily, he suffered from nausea and his pulse was very feeble, the rate about 50; the first record on the chart is given as 44. The blood pressure was 96 systolic and 60 diastolic. He was sufficiently conscious at this time to answer questions. The heart sounds were feeble and irregular.

The records of dehydration in desert experiences prompted an immediate intravenous injection of dextrose, 1,000 cc. of a 5 per cent solution. He had been given coramine, one ampule, and strychnine, 1/25 grain (2.5 mg.) hypodermically. There was a striking improvement in his condition immediately, seemingly the effect of the filling of the blood vessels. His nausea promptly left him; his pulse took on a comfortable rate and tension. With the same thought of dehydration in mind, I instructed him to take a glass of water every ten minutes. At 4 p. m. the temperature was 98, the pulse 72, respiration 20. By 7 o'clock he had taken by mouth 1,560 cc. of fluid—some was tea and some orange juice—and was manifestly much improved. He continued to take water liberally, until by 7 o'clock the next morning, after seventeen hours, the total intake by mouth was 3,640 cc. This, added to the 1,000 cc. given intravenously, made a total of 4,640 cc. of fluid in seventeen hours, approximately 9 pints. The output of urine during this time totaled 450 cc. The first examination of urine made of the 7 o'clock specimen (August 27) was: specific gravity, 1.035; albumin, 1 plus; sugar, 3.12 per cent; casts, numerous hyaline, frequent fine granular, and occasional coarsely granular, some containing leukocytes. There were 5 or 6 leuko-

cytes and 1 or 2 erythrocytes to the high power field. There were many mucous shreds. Of indican there was a faint trace.

An ice cap was kept on the patient's head for eighteen hours.

His blood pressure at 8 a. m., August 27, was 100 systolic and 70 diastolic. He was comfortable, had slept considerably and was ready to take some breakfast, which was light and sugar free. He continued to take fluid in liberal quantities, the record for twenty-four hours—from 7 a. m., August 27, to 8 a. m., August 28, being an intake of 2,900 cc. and an output of 795 cc. He made a rapid recovery and on the morning of the 28th he seemed in practically normal condition and was allowed to leave the hospital, forty-eight hours after admittance.

The urinary picture cleared promptly. By 6:45 that evening, the 27th, the specific gravity was 1.016; albumin, 0; sugar, 0; casts, 0; leukocytes, 0; erythrocytes, 0. It seems likely that the sugar in the first specimen was largely due to the dextrose solution given intravenously.

Does not this case suggest that dehydration is an important factor, if not the all important factor, in heat prostration?

All experience on the desert emphasizes the enormous quantity of fluid taken and the small output of urine. When one is motoring a day on the desert with a temperature upward of 110, with an enormous output of fluid through the skin, both visible and invisible, an intake of 4 quarts of fluid and an output of a pint of urine is a common experience. The low humidity relieves the body of enormous quantities of fluid without ever showing on the skin surface as perspiration.

Is not dehydration a factor in all cases of heat prostration and sunstroke? The amount of water demanded by furnace workers is proverbial. The buckets of beer which were regularly supplied to steel workers in pre-Volstead days and the enormous quantities of fluid taken by the stokers in the holds of steamships, especially naval vessels where temperatures often reach 130 to 140 degrees, indicate that the organism craves more fluid and makes a continuous demand for it. In this connection, efforts to maintain an adequate supply of sodium chloride should not be neglected. If dehydration is the striking factor in heat exhaustion, the remedy is obvious.

CORNELIUS VAN ZWALENBURG, Riverside, Calif.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BAKER'S DERMATITIS

To the Editor:—Bakers employed in a local bakery acquire a dermatitis of the hands from mixing dough. The condition is severe and disabling, and is resistant to treatment. It is not caused by all dough, but certain flours seem to exert a specific action. Will you kindly explain the etiology and assist in treatment? HAROLD C. COX, M.D., Highstown, N. J.

ANSWER.—Bakers' dermatitis (bakers' itch), like bakers' anemia, is an enigma to occupational disease workers. When a trade disease is attributed to many causes, it is usually true that the condition is not specific. Bakers' dermatitis has been attributed to flour "improvers," such as potassium persulphate, calcium sulphate in confectioners' flour, cream of tartar, salt, sugar, bran, acarids, wetness, wheat protein sensitization, yeasts, fungi, and mechanical action of dough. So loosely is the term applied that practically any skin lesion of the upper extremities in bakers is prone to be called bakers' itch or dermatitis. It is granted that dermatoses occur at a much higher rate among bakers and confectioners than among workers in general. However, both lesions and causative agents vary from person to person and outbreak to outbreak. At the present time more significance is to be attached to low grade mechanical injury from dough followed by mycotic invasion (or extension). Obviously, treatment will depend on the precise cause, which must be established from case to case. For those cases due to mycotic action, Mummery recommends the use of 33 per cent mercurous chloride in wool fat. Often it is necessary to carry out systemic treatment for generally lowered resistance, which is quite common in bakers. Metchnikoff's ointment (just mentioned) may not be expected to be of appreciable value in cases due to wheat (or other) protein sensitization. Extensive information on bakers' dermatitis may be found in the following:

Parsons, A. C.: Abstract of Report on Bakers' Itch, *J. Indust. Hyg.* **5**: 410 (March) 1924.
Parsons, A. C.: Bakers' Dermatitis, *Brit. J. Dermat.* **36**: 193 (May) 1924; abstr. *Brit. M. J.* **2**: 464 (Sept. 13) 1924.
White, R. P.: Bread Bakers' Itch, *J. State Med.* **32**: 556 (Dec.) 1924.
Mummery, N. H.: Bakers' Dermatitis, *Lancet* **2**: 607 (Oct. 3) 1925.

EPILEPSY OR HYSTERIA

To the Editor:—I was called to see a woman, aged 25, who had imbibed moderately of intoxicating drinks twice within the last six months. The heart rate was 94, respiration 18 and shallow, pupils contracted, and every muscle in the body rigid, so that the arms or legs could not be flexed. The mouth was open and drooling saliva. She was comatose and no mechanical stimulus would rouse her. The girl is head bookkeeper for a large concern and is above the average in intelligence. These attacks came on five years ago, following an operation for appendicitis. At the beginning, these attacks came on more frequently and had no relation to alcohol. There were no convulsions and no premonition. I have considered as a diagnosis cerebral edema, or "wet brain," but from the history by far most of her attacks have not followed drinking. Hysteria has also been considered. What are the possibilities? Please omit name.

M.D., Connecticut.

ANSWER.—From the description given this may be either epilepsy or hysteria. Epileptic attacks may be purely tonic and if the patient could not be aroused, and if the pupils did not react to light during the coma, the epileptic nature of the attack would be possible. If the use of alcohol has been at all moderate it is not likely that alcohol has been a factor. It is impossible with the data at hand to offer an opinion as to the probability of hysteria, as this would necessitate knowledge of mental conflicts and other difficulties in the path of the patient.

FAMILY WITH HIVES THROUGH FIVE GENERATIONS

To the Editor:—Three of a family of five children are pestered with swellings which do not resemble hives but which possibly have an appearance more like hives than like any other lesion. These appear more or less periodically, but especially during cold weather. The swellings vary from the size of a split pea to less than that of an almond and ache but do not itch. They are red but, after the fashion of hives, may disappear within a day or two. Nothing by way of treatment has been of any avail. The high lights of the children's history are as follows: About five generations ago, two boys made a wager to see which could stay in swimming the longer. Neither exactly outdid the other, but when finally rescued from this stubborn wager they were both covered with the same "lumps" with which the present children are now afflicted. One of the boys died and the other lived and seemed to be normal in every way. Through succeeding generations, groups of children which follow the tree of the boy who lived have had the same trouble. From two to five children in each of several families have been thus afflicted and nothing has been discovered which has helped any of them. The children that I have in mind have been treated a great deal and have had innumerable tests made. I wonder whether this particular family has ever been reported or if anything is known about such a condition.

LOUIS L. SHERMAN, M.D., Oakland, Calif.

ANSWER.—There are no recognized evanescent lesions which resembles the lesions described here except those of hives. These cases are apparently cases of hives in patients with unstable cutaneous circulation; unstable particularly in tolerance to cold. Cases of hives frequently present themselves in families who have a predilection to the trouble although the frank hereditary factor has been little discussed in the literature.

SENSITIVE AREA ON TONGUE

To the Editor:—I have had a sensitive and at times painful area on one side of my tongue for six months. It appears normal. The bridge work on the affected side has been removed. The Wassermann reaction is negative. So far as I know I am in perfect health. What would you suggest for the sore tongue? I am 45 years old. Please omit name.

M.D., Mississippi.

ANSWER.—A painful area on the tongue, or glossodynia, with a normal mucous membrane may be a neurosis or it may be due to irritation from adjacent teeth, dental fillings or amalgams. If there is a denuded, sharply defined patch at the site of the pain with extreme sensitiveness to foods, it would suggest a diagnosis of Moeller's glossitis. Enlargement of the foliate papillae at the side of the tongue should be looked for. Also the possibility of pernicious anemia should be considered. In the absence of any positive conditions, mild counterirritation with dilute solution of silver nitrate (from 5 to 10 per cent) may be helpful.

TINGLING SENSATION IN THE SKIN

To the Editor:—A man, aged 30, who seems to be in perfect health, says he has had for six years a tingling sensation in his skin, sometimes in small areas, sometimes universally distributed over his body, which appears either after a bath or while his skin is wet from perspiration. After his skin has been thoroughly dried, all tingling disappears. It is severe at times, making him feel as if he were on fire. There is no rash. He says that there are no other evidences of disease, in particular the allergic diseases, with the exception that eating clams or clam soup immediately causes abdominal pain. He states that there is no seasonal variation. It would seem of course to be pruritus, but its relationship to a wet skin is most unusual so far as my experience goes. Can you suggest anything regarding the nature of it, or the procedure to determine its cause? Please omit name if published. M.D., North Carolina.

ANSWER.—The condition described appears to be a hyperesthesia produced by external factors analogous to the cases of urticaria following exposure to cold and other physical agents (so-called physical allergy). There are a number of possible causes. There may be some functional or organic change in the central nervous system. It may occur in neurasthenic and hysterical states. The description does not fit in with the picture of a bath pruritus as the complaint is a tingling sensation and not itching. A neurologic examination is indicated.

DIFFERENTIAL DIAGNOSIS OF NEUROLOGIC CONDITIONS

To the Editor:—A white man, aged 51, complains of "the smell of smoke." One month ago he noticed a strong smell of smoke and a haze passed over his eyes. This attack lasted a few minutes and passed away, leaving him slightly dizzy. After an attack he notices that he perspires freely. These attacks have occurred more frequently in the past two weeks and he receives no warning of their occurrence. He does not lose consciousness. His past history is without incident, except for an attack of rheumatism eight years ago which kept him in bed for two months. Up to six months ago he was an engineer in a power house and was subject to the fumes of oil vapor. There is no history of venereal infection. Physical examination was practically negative. The eyegrounds were normal. The blood pressure was 130 systolic and 75 diastolic. There was no cranial nerve involvement. Wassermann examinations of the blood and spinal fluid were negative. The spinal fluid was not under pressure. During his last visit to my office he complained of momentary losses of recent memory. I shall appreciate any suggestions as to diagnosis and treatment. Kindly omit name. M.D., Michigan.

ANSWER.—An exact diagnosis is not possible from the symptoms reported. The momentary attacks with an aura involving the sense of smell suggest the possibility of the so-called uncinate fits that occur occasionally in association with a lesion involving the mesial aspect of the temporal lobe, in the region of the uncinate gyrus. At the age of 51, such a lesion might be either vascular or neoplastic. It is also possible that the condition is functional; in this connection one would inquire as to the reason for leaving work, as a possible source of emotional upset, since apparently it took place one month before the onset of symptoms. Careful search must be continued for evidences of organic injury. Studies of the visual fields and the sense of smell are indicated, and it may be necessary to have a neurologic surgeon perform encephalography or ventriculography in order to exclude a neoplasm. The treatment to be prescribed necessarily will depend on the conclusion reached as to the presence or absence of an organic lesion.

CRUMBLING OF TEETH

To the Editor:—A girl, aged 8 years, is normal and healthy in every respect except for the condition of her teeth. The first teeth were lost early, not in the usual manner, as they crumbled and wore off. She has never had a toothache. The second teeth now coming on are doing likewise. The grandmother had the same condition and I think that some of her ancestors were likewise affected. Of her children (eight or nine), six or seven show some peculiarity, including the father of the child. Of the grandchildren, about one half have normal teeth and the rest abnormal. I am unable to find anything in medical works at hand regarding this condition, and this family is the only one exhibiting the peculiarity that I have come in contact with. The father has been told by a dentist that the condition is due to lack of calcium in the blood, and the laboratory test shows the following: Kahn, micromethod negative in one tube with 0.05 cc. of serum; calcium, 5 mg. per hundred cubic centimeters of blood serum. The father has two other children, 10 and 2 years of age, with normal teeth.

ORVILLE PITNEY, M.D., Cheraw, Colo.

ANSWER.—This resembles the condition described by Martha Jones (*Dental Cosmos*, July, 1930) in children from San Francisco and on the Hawaiian Islands. It is usually confined to the deciduous teeth, although the permanent teeth seem to be susceptible to ordinary dental caries. Whether there is an hereditary factor involved is not clear, as it would appear that the condition may occur in children in whom such influence is lacking. Some peculiarity of mineral metabolism would probably favor its development, and such a peculiarity may be accounted for on an hereditary basis. Certainly 5 mg. of calcium per hundred cubic centimeters of blood serum is much too low.

It would seem that some plan is indicated including not only painstaking technical care of the teeth but also an effort to improve mineral metabolism largely through supervision of the diet whereby foods containing calcium and phosphorus may be ingested in abundance. The carefully controlled use of cod liver oil or viosterol in oil 250 D is probably indicated. The use of endocrine extracts in such cases has not been sufficiently successful to warrant giving them. Even under such a plan in a girl 8 years of age, because of the damage that has already been done to the permanent teeth, improvement will probably be slow and brought about only by intelligent cooperation of the dentist and physician in charge.

ENLARGED GLAND AT ANGLE OF JAW AND RELATION TO TONSILLITIS

To the Editor:—When one finds a single lymphatic node enlarged at the angle of the jaw, what conclusion is justified in regard to an infected tonsil being the cause of the enlargement and being, therefore, in need of removal? What other sources of infection may cause enlargement of this node? When this node is enlarged and no other sources of infection are found, should it be assumed that the tonsil is infected and should be removed? Please omit name. M.D., New York.

ANSWER.—The gland that is usually found below the angle of the jaw is often called the "tonsillar gland," because in infections of the faucial tonsils it is often enlarged. It is possible, however, that some infection in the region of but not absolutely involving the tonsils may cause enlargement of this gland. In most instances when it is present together with a history of tonsillar infections it indicates removal of the tonsils. When the gland is simply found enlarged and there are no sources of infection found in the pharynx and no history of any previous involvement, one might await future developments before removing the tonsils.

SPONDYLOSIS CHRONICA ANKYLOPOIETICA

To the Editor:—A white man, aged 32, has been ill for the past eight years, suffering from a stiffness of the spine. This condition began in the sacral region and has been progressing upward, so that now the patient is unable to bend forward or backward. In the neck region, he is unable to move his head in any direction unless the entire body is moved with it. Physical examination reveals no foci of infection. The gastro-intestinal and genito-urinary tracts are normal. Roentgenograms of the spine have been taken and the following is the radiologist's report: "There is a complete obliteration of the intervertebral disks of all the spinal segments with calcification of all the spinal ligaments, resulting in a complete bony ankylosis of all the segments of the spine. The deformity resulting therefrom is an almost complete contracture of the neck with anterior bowing, and in the cervical region at its upper segment there is complete loss of the atlanto-axial motion with fusion of the odontoid process to its constituent cervical segment. In the dorsal region there is obliteration as stated, with bowing of the dorsal segments anteriorly. In the lumbar region the normal anterior convexity is lost and has been replaced by a straight line contour of all the lumbar segments with a sharp angle articulation at the sacrum. There are no evidences of true arthritis, spur formations or exostosis. Diagnosis: spondylosis chronica ankylopoietica of Marie-Strümpell." Wassermann tests have been repeatedly negative. Is there anything else you might suggest? Do you agree with the radiologist's views? Do you think this is a neurogenic rather than an inflammatory or infectious involvement of the spine? What treatment could you advise? At present I am giving the patient sodium iodide, 10 cc. intravenously twice weekly, together with diathermy to the spine. BENJAMIN SEILER, M.D., Cliffside Park, N. J.

ANSWER.—The diagnosis of spondylosis chronica ankylopoietica of Marie-Strümpell is evidently correct. If the shoulder and hip joints are involved it should be called spondylosis rhizomelique.

Concerning the neurogenic factor, there is no proof. It is probably on the basis of an old infection, many of which infections are due to the gonococcus. The prognosis in this case is poor.

Treatment includes search for and removal of all sources of infection, including the teeth, throat, sinuses, intestinal tract and especially the prostate and seminal vesicles. Locally rest, radiant heat, and gentle massage of the muscles should be beneficial. The matter of glandular therapy has not been proved.

Most orthopedic surgeons agree that the Bradford frame, at first straight and later made convex, is of value, and that subsequently when the patient is allowed to be ambulatory a Taylor spine brace is beneficial.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination for Group III candidates to be held in eighteen cities in the United States and Canada, Oct. 31. *Clinical examination for all candidates.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

ARKANSAS: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Eureka Springs, Nov. 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

CONNECTICUT: *Regular.* Hartford, Nov. 10-11. *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

FLORIDA: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

KENTUCKY: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

MAINE: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

NEBRASKA: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NEVADA: Carson City, Nov. 2-4. Sec., Dr. Edward E. Hamer, Carson City.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

UTAH: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

WEST VIRGINIA: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

Colorado July Report

Dr. William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 7-10, 1931. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Forty-three candidates were examined, 42 of whom passed and 1 failed. Six physicians were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Med		(1930)	89.7, (1931) 84, 84, 84.2, 84.5, 84.6, 85.7, 85.8, 85.8, 86.2, 86.5, 87.3, 87.5, 87.7, 88, 88.2, 88.5, 88.6, 89.1, 89.3, 89.3, 89.5, 89.7, 90, 90.1, 90.2, 90.7, 90.7, 91, 91.1, 93.5
Johns Hopkins University School of Medicine		(1930)	92.5
Columbia University College of Phys. and Surgs		(1931)	93.1
National University of Ireland Faculty of Medicine		(1919)	90.7
Osteopaths			76, 77.1, 78.6, 80, 85.7, 86.7, 87.3, 88.5

College	FAILED	Year Grad.	Per Cent
Osteopath			72.1

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
College of Physicians and Surgeons, Los Angeles		(1917)	California
State University of Iowa College of Medicine		(1930)	Iowa
University of Kansas School of Medicine		(1930)	Kansas
Harvard University Medical School		(1929)	N. B. M. Ex.
University of Michigan Medical School		(1930)	Michigan
Western Reserve University School of Medicine		(1923)	Ohio

Mississippi June Report

Dr. F. J. Underwood, secretary, Mississippi State Board of Health, reports the written examination held at Jackson, June 23-25, 1931. The examination covered 12 subjects and included 96 questions. An average of 75 per cent was required to pass. Thirty-five candidates were examined, all of whom passed. Eight physicians were licensed by reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1931)	83.8, 84
University of Colorado School of Medicine		(1931)	81.7
Emory University School of Medicine		(1931)	83.4, 84.7, 85
University of Illinois College of Medicine		(1931)	91.3
University of Louisville School of Med		(1930)	86, (1931) 87
Tulane University of Louisiana School of Medicine		(1930)	86, (1931) 85.9, 86.8, 87.5, 88, 88, 90
Columbia University College of Physicians and Surgs		(1931)	91
University of Pennsylvania School of Medicine		(1931)	82.8
University of Tennessee College of Medicine		(1931)	82.5, 83.9, 84, 84, 84.6, 85, 85, 86
Vanderbilt University School of Medicine		(1931)	85, 86, 86.7, 87, 87, 87.4, 89.7, 91
Medical College of Virginia		(1931)	87.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1906)	Arkansas
Atlanta Medical College, Georgia		(1916)	Georgia
St. Louis University School of Medicine		(1908)	Missouri
John A. Creighton Medical College		(1906)	Nebraska
Meharry Medical College		(1930)	Tennessee
University of Tennessee College of Medicine		(1928)	Missouri
Vanderbilt University School of Medicine		(1927)	Tennessee
McGill University Faculty of Medicine		(1917)	W. Virginia

Alabama July Report

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 14-17, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty-two candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1931)	88.6
Emory University School of Medicine		(1931)	84.5, 87.1, 88.1, 90.2
Rush Medical College		(1931)	90 *
Tulane Univ. of Louisiana School of Med.		(1930)	86.1, (1931) 88.5, 88.7, 90.2, 90.2, 90.7, 91.1, 92.5, 94.4, 94.5
St. Louis University School of Medicine		(1931)	90.5
Cornell University Medical College		(1931)	91.6
Vanderbilt University School of Medicine		(1931)	90, 90.8, 94.7
University of Tennessee College of Medicine		(1931)	82.9

Dr. Baker also reports 5 physicians licensed by reciprocity with other states from June 24 to Aug. 15, 1931. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1924)	Illinois
Tulane University of Louisiana School of Medicine		(1929)	Louisiana
Vanderbilt University School of Medicine		(1926)	Tennessee
University of Tennessee College of Medicine		(1924), (1930)	Tennessee

* This applicant has received a four-year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.

Book Notices

ABDOMINAL PAIN. By John Morley, Ch.M., F.R.C.S., Honorary Assistant Surgeon, Manchester Royal Infirmary. With an introduction by J. S. B. Stopford, M.D., F.R.S., Professor of Anatomy, University of Manchester. Cloth. Price, $3.50. Pp. 191, with 22 illustrations. New York: William Wood & Company, 1931.

The author has been studying abdominal pain for many years and has incorporated in this small volume his views, which from time to time have appeared in English periodicals. He does not accept Mackenzie's theory of viscerosensory and visceromotor reflex. After reviewing the theories of Lenander, Ross, Kappis and Hurst he accepts certain ideas suggested by Lenander and Hurst and states that had Mackenzie realized the difference between splanchnic and somatic pain he would not have adopted his theory of viscerosensory reflex. "The discovery of the peculiar nature of the adequate stimulus for afferent autonomic nerves affords strong presumptive evidence against Mackenzie's theory." The author believes, as Hurst showed years ago, that there is a true visceral pain which is the result of abnormal tension on the splanchnic afferent nerve endings in the muscular wall of the hollow viscera. This pain, however, is only vaguely localized in the abdomen. There is, however, a definitely localizable pain of cerebrospinal nerve origin which is the result of irritation by an inflamed or pathologically irregular viscus, by a pathologic exudate, as blood, gastro-intestinal content or injected air as in pneumoperitoneum, of the parietal peritoneum. Thus the pain produced by a ruptured spleen, pneumoperitoneum, extravasated stomach contents or rarely gallstones coming in contact with the central portion of the under surface of the diaphragm, which is covered by parietal peritoneum, is frequently of the shoulder tip variety. The early pain of gallbladder disease is vaguely referred to the umbilicus or right side of the abdomen; later, when the gallbladder is enlarged sufficiently and pressure in the abdomen results in contact of the overlying parietal peritoneum and the gallbladder, the tenderness is definitely localized to that one

point. The pain of peptic ulcer is either vaguely localized when the cause is increased intragastric tension, or definitely localized, as when the peritoneum is brought into contact with the inflamed peritoneal covering of the lesion. These areas of tenderness, in gallbladder disease and ulcer, change their location with a change in the position of the point of contact with the peritoneum, as occurs spontaneously or, as in the former, with enlargement and descent of the gallbladder. The muscular rigidity and tenderness in general peritonitis are due entirely to the irritation of the parietal peritoneum. The early pain of appendicitis is vaguely localized to the navel but later is definitely localized to the right iliac region through a similar contact of the inflamed organ with the parietal peritoneum. Thus the accurate localization of tenderness becomes of real diagnostic value. If the theory of a viscerosensory reflex would explain this pain, Why, the author asks, is not the pain referred to both sides of the abdomen rather than to one? In the case of a gangrenous loop in an intussusception there is only the vaguely localized pain and no tenderness as long as the encasing loop is not inflamed. The prerenal peritoneum is definitely sensitive, and pressure on the kidney produces pain. The author questions whether the mucosa of the renal and ureteral pelvis may not have a cerebrospinal nerve supply because of the intense localizing referred pain. The last chapter is devoted to some consideration of referred pain, splanchnic and somatic, pleuropulmonary and testicular pain. The book is well written and the subject matter well presented.

THÉORIE ET PRATIQUE DE LA TÉLÉCURIETHÉRAPIE. Par Max Cheval, membre correspondant de l'Académie Royale de Médecine de Belgique, et A. P. Dustin, professeur d'anatomie pathologique de Université de Bruxelles. Paper. Price, 34 francs. Pp. 238, with 76 illustrations. Paris: Masson & Cie, 1931.

The authors describe in detail an apparatus for the application of gamma rays by distant irradiation. The method has been used for the last three years. The apparatus permits the treatment of two patients at the same time, a procedure used first by Mallet and Colier in 1925. The distribution of equal intensities of the radiation were measured with an electroscope. The focus skin distance used were 12, 14 and 16 cm. and the intensities obtained in the depth at 10 cm. were 20 to 21, 24 to 25, and 26 to 27, respectively. The applications are given daily in divided doses repeated from ten to twelve times, the total dose to each field being from 18 to 24 gram hours of radium destroyed, which is equal to from 24 to 36 D. of Proust and Mallet. Intratumoral insertions of radium or radon capsules are added wherever possible. The action of radium rays on the general constitution, the healthy tissues and the various cell types of cancers is discussed and illustrated. A large number of clinical reports is added including cancers of the upper respiratory tract, the esophagus, the breasts, the uterine cervix, the rectum and sarcomas. The conclusions given are that distant gamma ray therapy is an efficient method to cure early cancers and to palliate advanced cancers. The interval applications permit a distribution of the total dose over ten or twelve days. The large amount of radium employed shortens each sitting to two or three hours, permitting the patient to be up the rest of the day and avoiding the strain of long confinement in one position. The total dose applied by this technic does not cause any intense and adverse reactions of the skin area, the blood, and the general health. Observations gathered in this country with distant radium treatment coincides almost entirely with those stated in the monograph.

CONTEMPORARY SCHOOLS OF PSYCHOLOGY. By Robert S. Woodworth, Ph.D., ScD., Professor of Psychology, Columbia University Psychology Series. Albert T. Poffenberger, Ph.D., Editor, Professor of Psychology, Columbia University. Cloth. Price, $2.50. Pp. 232. New York: Ronald Press Company, 1931.

The author is eminently fitted for this survey of contemporary psychology. During his years of teaching he has made fundamental contributions to psychologic literature. He has no ax to grind for any theory; neither is he an enthusiast or a hostile critic. The book presents an impartial picture of the essential features of the trends in present-day psychology. After an historical introduction there follow chapters on traditional introspective psychology, behaviorism, gestalt psychology, psychoanalysis, the purposive psychology of McDougall, and a final chapter on the middle of the road, which the author takes. It is not an elaborate, critical work which would appeal only to the professional psychologist. It should have an appeal for the general reader and especially for the physician who wants to know something about present-day psychology. It would be difficult to imagine a briefer, clearer or more interesting summary in its field. There is probably not a better introduction to the writings of Freud, Jung and Adler than the author's chapter on psychoanalysis. The balanced point of view that pervades it could come only from one whose experience in this field has been extensive, critical and mature.

PRÉCIS D'OTO-RHINO-LARYNGOLOGIE. Par Georges Laurens, laryngologiste de l'Hôpital Saint-Joseph. Avec la collaboration de Maurice Aubry, laryngologiste des hôpitaux, et André Lemariey, assistant de laryngologie. Cloth. Price, 120 francs. Pp. 1224, with 428 illustrations. Paris: Masson & Cie, 1931.

This work is termed a "compend," but it is a most extensive one indeed. While it is dedicated by the authors to students, practitioners and young otolaryngologists, it will really serve the experienced otolaryngologist as well. All historical references except the most recent ones are omitted. The book covers almost every condition in ear, nose and throat work and diseases of the trachea and esophagus. It is surprising to note with what completeness the subject of the functional testing of hearing, testing of the vestibular apparatus, and detailed operative procedures of the ear, nose and throat are given. Every subject is systematically arranged and treated with the clarity that is characteristic of most French writings. There are numerous illustrations, which are simple and instructive. In a word, this is a veritable "multum in parvo," the reading of which will well repay every one interested in otolaryngology. The lack of bibliography can easily be supplied by larger works if the reader desires to review the complete literature on any subject, but in a work of this type it is not essential. The book gives a well organized comprehensive discussion of the field of otolaryngology, and it is done in admirable style.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Tenth edition. Cloth. Price, $6. Pp. 819, with 200 illustrations. Philadelphia: W. B. Saunders Company, 1931.

The tenth edition of this well known book differs from the previous edition only through the attempt of the author to keep it abreast of the times. He has made extensive revisions of the sections on undulant fever, the paratyphoid group, the filtrable virus diseases, pathogenic yeasts, anaerobes, and the section on variation. The subject of bacteriophage has been handled with greater detail than heretofore, and minor changes have been made in many other chapters. The author has tentatively employed some generic names that have come into general use, such as salmonella, mycobacterium and brucella, and he has reluctantly introduced even the term eberthella. He recognizes that nomenclature in bacteriology is still a vexed question and will remain so until a general system can be worked out by international agreement. The author does not, of course, attempt the impossible task of extensively treating in one fair-sized volume all of bacteriology. He has, however, fully treated the fundamental principles and the methods of laboratory work.

TRAITEMENT DES SYNDROMES HÉPATO-BILIAIRES. Par le Dr. G. Parturier, professeur d'hépatologie à la Faculté Libre de Médecine de Lille. Paper. Price, 30 francs. Pp. 334. Paris: Vigot Frères, 1931.

In this book is presented from the medical standpoint a fairly comprehensive study of primary liver disease, particularly jaundice of hepatic origin, the various infections, cysts and tumors of the liver; the cirrhoses with differential diagnostic methods, and the mechanism and treatment of hemorrhage. Medical and surgical indications make up the bulk of the text. It is a text not altogether easy for the American physician to assimilate. The vast number of "cures" for alimentary disease that are found throughout central Europe contribute the basis for much of the therapy. At best the subject has a greater pathologic than clinical interest, excepting from the point of view of differential diagnosis, which is well handled in well arranged tables. There is a regrettable absence of the newer literature bearing on the relation of calcium metabolism and jaundice. The treatment of hemorrhage due to jaundice is inadequately handled. There are no illustrations.

RECENT ADVANCES IN PULMONARY TUBERCULOSIS. By L. S. T. Burrell, M.A., M.D., F.R.C.P., Senior Physician to Royal Free Hospital. Second edition. Cloth. Price, $3.50. Pp. 240, with 49 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

The title of this work is something of a misnomer. The book is more of a compend, concise and meaty. There may be those who will not entirely agree with the author's views in every respect, but the little volume is no worse for that. It contains in brief form about all that there is to be said with regard to the treatment of tuberculosis of the lungs. It is to be regretted, perhaps, that recent German authors were not mentioned in the section on pathology. It would be interesting, for instance, to know what an Englishman such as Burrell would have to say regarding the "schub theorie" of the advance of disease (tuberculous). "Sanocrysin" receives attention to the extent of nine pages. It will be remembered that this gold preparation has been condemned by various authorities in the United States in the face of carefully prepared reports by responsible medical men, Burrell's chapter on "Sanocrysin" indicates careful investigation of this subject. It certainly does not smack of overzealousness. The book takes up, in course, artificial pneumothorax, radiology, complications and treatment, and climate.

DIAGNOSTIC DES TUMEURS CÉRÉBRALES ET ÉPREUVE DE L'ENCÉPHALOGRAPHIE ARTÉRIELLE. Par Egas Moniz, professeur de neurologie à la Faculté de médecine de Lisbonne. Préface de M. le Docteur Babinski. Paper. Price, 100 francs. Pp. 512, with 225 illustrations. Paris: Masson & Cie, 1931.

In this interesting work the author presents the result of his studies on more than ninety cases in which he and his associates have done "arterial encephalography." The technic of injecting sodium iodide into the carotid arteries and of taking the roentgenograms is given. With numerous case records and many excellent roentgenograms he then discusses the positive observations in "arterial encephalography." The disadvantages, particularly homolateral convulsive seizures and rarely hemiplegia, are also thoroughly discussed and cases cited. Regardless of one's opinions as to the value of arterial encephalography and as to the advisability of using it clinically, one cannot help but appreciate having this well documented report of the experiences of this careful worker, who was the discoverer of the method and remains its chief advocate. More than half of the book is devoted to the symptomatology of tumors of the brain in general. However, although this portion adds nothing to the book it does not detract from Professor Moniz's clear presentation of his main thesis.

ROENTGEN INTERPRETATION: A MANUAL FOR STUDENTS AND PRACTITIONERS. By George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital, and Howard E. Ruggles, M.D., Roentgenologist to the University of California Hospital. Fourth edition. Cloth. Price, $5. Pp. 339, with 237 illustrations. Philadelphia: Lea & Febiger, 1931.

The authors have written an intelligent and easily readable outline of some of the most important principles of roentgenology. The discussion is notable for its clarity and the subject matter has been brought down to date. The portion of the work that is devoted to technic is exceptionally clear and valuable for the beginning roentgenologist. The subject matter is well condensed and the book is to be highly recommended to all students of roentgenology.

STUDIES OF PROTECTION AGAINST TUBERCULOSIS: RESULTS WITH B. C. G. VACCINE IN MONKEYS. By A. Stanley Griffith. Medical Research Council, Special Report Series, No. 152. Paper. Price, 9d. Pp. 49. London: His Majesty's Stationery Office, 1931.

The great reputation of Dr. Griffith, whose pioneer experiments did much to develop our understanding of the relations of human and bovine tuberculosis, gives this pamphlet especial importance. The British Medical Research Council has taken the stand that the administration of B C G to children is unjustifiable until indisputable confirmation of Calmette's work has been obtained. The report here noted deals with experiments which Dr. Griffith made at the request of the council's committee on the bacteriology of tuberculosis. The experiments were confined to monkeys and to a considerable extent repeated the work of Wilbert, who directed the original B C G experiments of the Pasteur Institute on anthropoid apes in French Guinea. Griffith's experiments on monkeys, however, failed to confirm Wilbert, who reported a strong immunizing action of B C G. Griffith has found that B C G is indeed of low virulence for monkeys and is absorbed from the alimentary tract after oral administration. But his vaccinated monkeys failed to show any protection against subsequent virulent tuberculous infection. The trials were numerous and obviously made with great care. Their negative result is another strong blow for the contentions of Calmette, which have encountered much opposition in other quarters recently.

THE INBORN FACTORS IN DISEASE: AN ESSAY. By Archibald E. Garrod, K.C.M.G., D.M., LL.D., Consulting Physician to St. Bartholomew's Hospital. Cloth. Price, $2.75. Pp. 160. New York: Oxford University Press, 1931.

It is common knowledge that no two individuals, some say even identical twins, are exactly alike. Many anatomic and physiologic differences are often plainly evident; others, especially the chemical ones, may be brought out only by careful examination. These inborn factors may have a definite and often inescapable bearing on the health history. Various terms, not always sharply differentiated, are used to denote these individual or racial peculiarities: hereditary influence, the constitution of the person, diathesis, predisposition, susceptibility, natural immunity or vulnerability as concerns infections, idiosyncrasy. These and other similar terms are often employed without a full realization that there is much concerning them that is not yet understood. Unless one is well informed in these matters one may with advantage read this timely and fair-minded essay of Garrod. Facts and theories are clearly and briefly stated by one thoroughly competent to handle this quite recondite subject. Moreover, it will serve as a guide to one who may wish to pursue still further this feature of disease, which in the future will surely be regarded as of increasing importance.

LES POISONS DU BACILLE TUBERCULEUX ET LES RÉACTIONS CELLULAIRES ET HUMORALES DANS LA TUBERCULOSE. ESQUISSE D'UNE CONCEPTION NOUVELLE DES PROCESSUS PATHOGÉNIQUES DE LA TUBERCULOSE. Par le Docteur Jean Albert-Weil, chef de clinique médicale adjoint à la Faculté de médecine de Strasbourg. Préface du Professeur A. Borrel. Paper. Pp. 327, with illustrations. Paris: J. B. Baillière & Fils, 1931.

This is a serious attempt to summarize for French medicine the large amount of work done in recent years throughout the world on the chemistry of the tubercle bacillus. It devotes extensive space to the work of Anderson, Johnson, Long, Seibert, Sabin and others working on the chemistry and biology of the tubercle bacillus in this country under the auspices of the National Tuberculosis Association. Unfortunately the author has overlooked much of the American literature since 1928 and has thereby missed an immense amount of material germane to his subject. In general the conclusions are approximately those reached in this country some time ago. The book will be useful in France in supplementing Calmette's comprehensive work on tuberculosis but will be superfluous to the American physician who has access to numerous reviews of this subject in American publications.

CELEBRATION OF THE CENTENNIAL OF THE LIBRARY OF THE MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF MARYLAND, 1830-1930. Cloth. Pp. 77 with 37 portraits. Baltimore: Medical and Chirurgical Faculty of the State of Maryland, 1931.

In 1830, the Medical and Chirurgical Faculty of the State of Maryland founded a library. Last year the faculty prepared a centennial exhibit to visualize the period in Baltimore at the time of the founding of the library. Prints of Baltimore of that period were lent for the occasion, the series of bookplates used by the library was shown, and the atmosphere of those early days was in large measure recreated. In addition to the exhibit prepared by the committee, the chairman of which was Dr. John Ruhräh, there were addresses by Dr. Archibald Malloch, librarian of the New York Academy of Medicine, on "A Century of American Medical Libraries"; Dr. Lewellys F. Barker, Johns Hopkins University, "The Development of Internal Medicine During the Past One Hundred Years"; Dr. Irving S. Cutter, dean of Northwestern University Medical School, "Surgical Progress of the Century"; Dr. Joseph Collins of New York, "Progress of Medical Specialties During the Past One Hundred Years"; the governor of Maryland, Albert

C. Ritchie; Dr. John Ruhräh on "Dr. Samuel Baker, the Founder of the Library"; Marcia C. Noyes, the present librarian; Dr. Harry Friedenwald, "The Inspection and Growth of the Library," and Dr. William H. Welch, Johns Hopkins University, "Medicine in 1830." Twenty-eight years after the library was founded, the faculty first met in a home of its own. This building was outgrown in less than ten years, being sold in 1867. The new location at 60 Cortland Street, taken over in 1869, was too small for the library and other activities of the faculty, and was given up. In 1874 the library moved to Fayette Street. In 1878 another move was made across Fayette Street to a hall, where, there being no attendant most of the day, it was the custom to hang the key where all members would have access to it. In her address, the present librarian suggests that this custom may explain why so many books that were in the early collection are now missing. In 1885 the faculty moved to a basement in the old Atheneum, at St. Paul and Saratoga streets, and in 1896 to North Eutaw Street, where a full time librarian was employed. The move to this home was in large measure due to Dr. William Osler, who spent many hours in the library. The last move was made in 1909 to 1211 Cathedral Street into a new building owned by the faculty. The Library of the Medical and Chirurgical Faculty of Maryland began with 274 books; during the last quarter century the number was brought up to 45,000 books. Dr. Malloch, in his address, recalls interesting facts concerning American medical libraries. The oldest medical library is the Pennsylvania Medical Hospital Library, established in 1763. There are now in this country and Canada about 214 medical libraries; the largest is the Library of the Surgeon General's Office, Washington, D. C., in which there are 324,541 bound volumes and other items to make a total of 853,462. Thus medical libraries have multiplied and grown, and among those which have established splendid traditions of service is the Library of the Medical and Chirurgical Faculty of Maryland.

FRAUENGYMNASTIK IM LICHTE DER FUNKTIONELLEN ENTWICKLUNG. Von Hugo Sellheim, Prof. Dr. Med. geheimer Medizinalrat, Vorstand der Univ.-Frauenklinik zu Leipzig. Paper. Price, 2.10 marks. Pp. 43, with 42 illustrations. Leipzig: Curt Kabitzsch, 1931.

This is a reprint of a lecture delivered by Sellheim on the subject of gymnastics and its effects on women. He points out not only the benefits derived from properly directed athletic activities but also the harm that results from the various sports. He discusses the effects of different forms of exercise in all phases of a woman's life beginning with childhood and progressing through adolescence, early womanhood, pregnancy, the puerperium and the menopause. One of the things of interest to obstetricians is the author's description of exercises that restore the tonicity and appearance of the abdominal wall after delivery. There are many beautiful illustrations.

PRACTICAL METHODS IN THE DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES FOR MEDICAL PRACTITIONERS AND STUDENTS. By David Lees D.S.O., M.A., M.B., Surgeon in Charge of Venereal Diseases, the Royal Infirmary, Edinburgh. With introduction by Wm. Robertson, M.D., F.R.C.P., D.P.H. Second edition. Cloth. Price, $5. Pp. 634, with 95 illustrations. New York: William Wood & Company, 1931.

This compendium contains a detailed presentation of the symptoms, clinical course and treatment of venereal diseases. Numerous illustrations help the understanding of the text, which follows the usual lines. Evaluation of serum, vaccine treatments and diathermic administrations is based on a sober analysis of the results obtainable.

L'ARTHRITISME: SES MISÈRES, SES DANGERS, SON TRAITEMENT. Par Dr. Jacques Sédillot. Paper. Price, 30 francs. Pp. 496, with 15 illustrations. Paris: Louis Arnette, 1931.

This bears as a subtitle "L'arthritisme, affaire hépato-endocrinienne." It is an elaborate clinical speculation on the nature of arthritis and certain associated disorders, including asthma. Diagnostic emphasis is placed on determination of the ratio of urinary nitrogen to urinary uric acid. Treatment centers almost entirely on dietetics and purgation, the former chiefly along the lines of avoidance of meat. The book contains few references to the literature, even in French, and would hardly deserve mention except for the fact that, in the light of present knowledge concerning the rheumatoid problem, betterment of gastro-intestinal function in a wide sense of the word, together with intelligent curtailment and balancing of the dietary, constitutes an essential step in therapy in a definite proportion of cases. Citation of successful treatment along the lines elaborated by the author of this book therefore requires evaluation. To relate such results solely to the premises advanced is evidence of unfamiliarity with the large amount of precise data in this field.

Medicolegal

Alleged Mistake in Identity of Clinic Patient

(Samuelson v. Taylor et al. (Wash.), 295 P. 113)

The plaintiff had difficulty in reading, which he attributed to eye strain, and visited a clinic maintained by the defendants, licensed physicians and surgeons. He was there attended by one of the defendants, who examined his eyes. The plaintiff was requested to return the following morning. According to the plaintiff's testimony, he reported to the office nurse the next morning and was sent to the private office of the defendant who had examined him on the previous day. There that defendant told him to sit down in a certain chair, which was not the chair the plaintiff had occupied during the examination on the previous evening. Without asking him any questions whatsoever or making any examination, testified the plaintiff, said defendant proceeded to wash out his right antrum under a local anesthetic. After this was done, the nurse entered the office and was asked by the said defendant if there was any other patient waiting for attention. She replied in the negative. Said defendant stated that he was expecting "that young fellow from the normal school," referring to the plaintiff. Whereupon the plaintiff remarked that he was the patient referred to by the defendant. According to the plaintiff's testimony, said defendant then said: "Gosh, I thought your name was Gilmore," and directed the plaintiff to change his seat to another chair where he further examined the plaintiff's eyes.

Thereafter the plaintiff became ill and suffered great pain in his head. He consulted another physician, who opened his right antrum and found in it dark blood clots and pus. The plaintiff later became very sick and was taken to a hospital, where he remained some time, dangerously ill and suffering severe pain. He sued the defendants for injuries suffered by reason of his illness, alleging that the defendant, who treated him at the clinic, had wrongfully and unnecessarily opened and washed his right antrum under the mistaken impression that he was another patient and that by reason of this mistake the antrum became infected. The trial court gave judgment for the plaintiff, which was affirmed by the Supreme Court of Washington.

The defendants contended that there was no mistake in identity, that the treatment administered by one of the defendants was necessary, usual and proper, that the work was performed skilfully and efficiently, and that the plaintiff's subsequent illness was due either to the operation thereafter performed on the plaintiff by the other physician, or to some extraneous cause concerning which the defendants had no information and for which they were not responsible. Several physicians testified for the defendants to the effect that the treatment given was proper and usual in the course of such an examination as the plaintiff had requested. The physician-defendant who treated the plaintiff at the clinic testified that when he first examined the plaintiff he decided to wash the antrum and so informed the plaintiff when he instructed him to return the next morning. The physician who subsequently attended the plaintiff testified that when he opened the plaintiff's antrum he found it in a very bad condition and that in his opinion the plaintiff's later illness resulted from infection spreading from the antrum.

The fact that the number of expert witnesses testifying for the defendants, said the Supreme Court of Washington, exceeded the number testifying for the plaintiff did not impose on the jury the duty of accepting the defendant's theory and of rejecting the plaintiff's. Whether or not the physician-defendant who treated the plaintiff at the clinic was mistaken in the identity of the plaintiff, and whether or not the washing of the plaintiff's antrum by that physician was proper and

necessary, were questions for the jury in view of the conflict of the evidence. While the plaintiff's testimony did not amount to a demonstration that any infection of his antrum was due to the treatment by the physician-defendant, the testimony in relation thereto afforded, in the opinion of the Supreme Court, a sufficient basis for the verdict of the jury. As is often the case, observed the court, the testimony was in direct conflict but it could not hold that the evidence so greatly preponderated in the defendants' favor as to require the setting aside of the verdict.

Kidney Stones Attributed to Contaminated Well Water

(Schlichtkrull v. Mellon-Pollock Oil Co. (Pa.), 152 A. 832)

The defendant oil company, in 1925, drilled an oil well at a distance of 988 feet from a well used as a source of drinking water by the plaintiffs, Mr. and Mrs. Schlichtkrull. In the fall of 1926, Mr. Schlichtkrull complained to the defendant of the presence of salt and sulphur in his well. In May, 1927, Mrs. Schlichtkrull became ill and an operation showed the presence of kidney stones. In this action it was contended that the kidney stones resulted from the defendant's negligence in drilling his well and consequent contamination of the plaintiffs' drinking water. The trial court awarded damages, but the Supreme Court of Pennsylvania reversed that judgment.

A chemical analysis in 1929 of water taken from the well in the fall of 1928, eighteen months after Mrs. Schlichtkrull's illness, disclosed calcium sulphate and carbonates, sodium chloride or ordinary table salt, and a trace of magnesium chloride and carbonate, with some organic matter in suspension. An analysis of the kidney stones removed from Mrs. Schlichtkrull showed calcium and magnesium phosphates, no chlorides nor carbonates, a slight quantity of ammonium phosphate and a large amount of organic matter. No sulphur was found in either the well water or the kidney stones. A general practitioner, a witness for the plaintiffs, testified that the illness of Mrs. Schlichtkrull resulted from the use of the well water. He had never investigated the component parts of the water, although he had examined the report on the chemical analysis of it. He testified that infection may have been a factor in causing the formation of the kidney stones. The physical condition of Mrs. Schlichtkrull, according to her experts, was due to the absorption of magnesium salts, but no effort was made to show that these salts came from the well complained of rather than from other sources which might produce the kidney stones. A witness for the plaintiffs stated that there were five causes which might produce obstructions in the kidneys and that no one could state with certainty the reason for the formation of the stones found. In his opinion, the high mineral content of the water was a factor of first importance in causing the illness. He added, however, that the same mineral elements found in the water are contained in many kinds of food and may be absorbed as a result of eating them. Experts on behalf of the defendant declared positively that there was no connection between the oil well and the kidney stones.

In the opinion of the Supreme Court, the plaintiffs failed to meet the burden of proof resting on them. No one testified, said the court, that the chemical elements producing the kidney stones ordinarily passed, or were ever known to pass, from an improperly protected oil well or that they would pass through the ground for 988 feet. Even though the defendant was negligent in failing properly to case its well, resulting in the percolation of salt water to the plaintiffs' property, it was not affirmatively shown that the defendant knew of any danger in using well water impregnated with ordinary salt, the basis of the complaint made in 1926. The evidence further disclosed that the kidney stones may have been produced in many other ways and there was a failure, said the court, sufficiently to individuate the water as the cause. The drinking water was not analyzed until 1929, nearly two years after the illness, from a sample taken in 1928, and there was no evidence as to the condition of the water at the time of the illness. The injurious elements claimed to have produced the kidney stones were not shown to have existed ever in the defendant's oil well. The mere fact that Mrs. Schlichtkrull became ill in 1927 was not sufficient to prove actionable want of care on the part of the defendant.

Evidence: Mental Competence of Witness Determinable by Trial Court.—Where objection is made to the competence of a witness to testify on the ground of mental unsoundness, the trial court determines the question of competence, and its decision will not be disturbed unless a clear abuse of discretion is shown by the record. In the present case, the defendant was tried for rape. He contended that the prosecuting witness was a nymphomaniac and incapable of speaking the truth. In the absence of the jury, the court, after hearing a large number of witnesses, including some of the leading physicians of the state, found the witness was competent to testify. During the trial, and in the presence of the jury, witnesses were permitted to testify to facts bearing on the mental soundness of prosecuting witness. While this evidence, said the criminal court of appeals of Oklahoma, was inadmissible for the purpose of questioning the capacity of the witness to testify, that question having already been determined by the court, it was admissible as affecting her credibility.—*Miller v. State (Okla.), 295 P. 403.*

Medical Practice Acts: Chiropractic as the Practice of Medicine.—The defendant was convicted under the medical practice act of New Jersey of practicing medicine and surgery without a license. He contended that he merely practiced chiropractic and that such practice did not constitute the practice of medicine and surgery within the meaning of the medical practice act. He had no license to practice chiropractic. The evidence showed that the treatment given by the defendant consisted of spinal manipulation only. The precise question before the court was whether chiropractic is a branch of medicine or surgery. Evidently the legislature elected so to regard it, said the Supreme Court of New Jersey, when, after passing an act to regulate the practice of chiropractic, it repealed it the following year and provided for the issuance of limited licenses under the medical practice act and provided for the appointment on the board of medical examiners of a "reputable chiropractor practicing chiropractic in this state," who "shall represent the school of practice to which he belongs in said board." It was entirely within the power of the legislature, said the court, to label chiropractic as a branch of medicine or surgery. Judgment of conviction was affirmed.—*State Board of Medical Examiners v. Maza (N. J.), 153 A. 259.*

Compensation of Physicians: Liability of Tort Feasor.—One who inflicts an injury on another is bound to restore the injured person as nearly as possible to his former condition and is liable for necessary and reasonable hospital bills. The fact that the brother and sister of a person, injured by the negligence of another, pay, with the assent of the injured person, the hospital bill which had been rendered, does not prevent the injured person from recovering the value of the services represented by the bill from the one responsible for the injury.—*Skillen v. Eagle Motor Co. (N. J.), 152 A. 854.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Chicago, October 29-31. Dr. E. D. Plass, University Hospital, Iowa City, Sec'y.

Interstate Postgraduate Medical Association of North America, Milwaukee, October 19-23. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

Oregon State Medical Society, Eugene, October 22-24. Dr. F. D. Stricker, Oregon Building, Portland, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, White Sulphur Springs, December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Branch of American Urological Association, San Francisco, Nov. 6-7. Dr. H. W. Howard, 193 Eleventh St., Portland, Ore., Sec'y.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

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Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

1: 1-44 (July) 1931

Studies on Pathology of Tuberculosis and Syphilis. R. S. Cunningham, Nashville, Tenn.—p. 8.

Plants Causing Hay Fever in Alabama. C. K. Weil, Montgomery. —p. 15.

American J. Medical Sciences, Philadelphia

182: 157-300 (Aug.) 1931

Present Status of Classification, Pathology and Etiology of Chronic Rheumatic Disease. J. L. Miller, Chicago.—p. 157.

Significance of Gastric Secretions in Pernicious Anemia. C. W. Barnett, San Francisco.—p. 170.

Polypi and Polypoid Conditions of Gastro-Intestinal Tract, with Especial Reference to Pathologic and Radiologic Aspects. H. B. Anderson and H. M. Tovell, Toronto.—p. 177.

Britton's Pathognomonic Signs of Gangrenous Appendicitis. G. P. La Roque, Richmond, Va.—p. 191.

Studies in Complete Heart Block: I. Cardiac Output and Peripheral Circulatory Mechanism. L. B. Ellis and Soma Weiss, Boston.—p. 195.

Aortic Aneurysm Rupturing into Conus Arteriosus of Right Ventricle. E. H. Schwab and C. B. Sanders, Galveston, Texas.—p. 208.

Case of Congenital Stenosis of Pulmonary Valve, with Late Onset of Cyanosis: Death from Carcinoma of Pancreas. J. H. Arnett and C. F. Long, Philadelphia.—p. 212.

Postural Hypotension: Case. A. O. Sanders, Palo Alto, Calif.—p. 217.

Leukocytic Reaction in Tuberculosis of Infancy and Childhood: Blood Studies with Supravital Technic. C. H. Smith, New York.—p. 221.

Percentage of Eosinophils in Blood Smears from Insulin-Treated Diabetics. E. M. Watson, London, Canada.—p. 231.

Further Studies in Case of Calcification of Subcutaneous Tissue ("Calcinosis Universalis") in Child. W. Bauer, A. Marble and G. A. Bennett, Boston.—p. 237.

Toxoid as Immunizing Agent in Diphtheria. H. H. Ray, San Francisco. —p. 251.

Toxicity and Rate of Elimination of Organic Arsenicals in Treatment of Entamebiasis. P. W. Brown and A. E. Osterberg, Rochester, Minn. —p. 257.

Guides to Prevention and Treatment of Simpler Neuroses. M. Fremont-Smith, Boston.—p. 261.

Archives of Internal Medicine, Chicago

48: 171-350 (Aug.) 1931

*Relation of Achlorhydria to Pernicious Anemia. E. Moschcowitz, New York.—p. 171.

Circulation in Arteriovenous Aneurysm: Before and After Operation. C. Smith, Atlanta, Ga.—p. 187.

Malignant Nephrosclerosis: Pathogenesis. P. F. Shapiro, Chicago.—p. 199.

Body Types in Women of Infertile Constitution: Value of Surface Area Proportions as Anthropometric Method of Differentiation. S. G. Berkow, Perth Amboy, N. J.—p. 234.

Inflammation: Protective Mechanism. V. Menkin, Boston.—p. 249.

Mechanism of Production of Subauricular Beats by Digitalis Bodies. H. Gold, A. Lieberson and B. Gelfand, New York.—p. 262.

Relation Between So-Called Renal Lesions of Plasmapheresis in Dogs and Contracted Kidneys in Man. L. Leiter, Chicago.—p. 286.

Chemistry and Metabolism in Experimental Yellow Fever in Macacus Rhesus: IV. Tolerance Tests for Dextrose. A. M. Wakeman and Clare A. Morrell, New York.—p. 301.

*Rôle of Artichokes in Diet of Diabetic Patient. H. B. Stein, B. Longwell and R. C. Lewis, Denver.—p. 313.

*Effects of Treatment with Oxygen in Cardiac Failure. A. L. Barach and D. W. Richards, New York.—p. 325.

Achlorhydria and Anemia.—Moschcowitz states that achlorhydria is such a constant sign in pernicious anemia that probably no case is valid unless it is present. Achlorhydria is not the result of the disease but is primary. Evidence for this is shown in the fact that there is no diminution of hydrochloric acid in the progress of a case of pernicious anemia and that achlorhydria is present from the onset, that achlorhydria persists in the stage of remission and that it has been found frequently for years before pernicious anemia became manifest. Achlorhydria occurs normally in a small percentage of persons. In order to determine this percentage, it is essential that mass studies be made not only with the fractional method of testing gastric secretion but also with the tests with neutral red and histamine. The percentage of persons with achlorhydria apparently increases with each decade. It is extremely rare in childhood. Achlorhydria is often present in certain families. In families in which a case of pernicious anemia has occurred, the incidence of achlorhydria is much higher than normal. As this incidence increases in each decade and as achlorhydria is exceptional in childhood, achlorhydria itself is not transmitted but only the tendency thereto. Pernicious anemia is frequently hereditary and familial. Whether pernicious anemia is always hereditary and whether it is a dominant or recessive character and transmissible according to the mendelian law cannot be determined until such families are studied with particular reference to achlorhydria and with accurate hematologic examinations being made for three generations at least. The available evidence is not convincing that Bothriocephalus latus causes pernicious anemia. There is ground for believing that such reported cases represent instances of true pernicious anemia that happen to be associated with infestation with Bothriocephalus. There is a definite relation between achlorhydria and anemia, of the pernicious, secondary and chlorotic types. The blood of relatives of patients with pernicious anemia shows changes, which sometimes may be regarded as the earliest or preclinical evidence of the disease. For diagnostic purposes, it is important to recognize this preclinical phase. The development of pernicious anemia after an acquired achlorhydria, for instance after complete gastric resection, has not definitely been proved. Many of the so-called severe anemias of pregnancy (exclusive of those due to hemorrhage or sepsis) represent cases of true pernicious anemia in which the patients have become pregnant. Whether the pregnancy is the inciting factor in patients with a constitutional tendency remains to be proved. The anemia of sprue is often associated with achlorhydria. It has not yet been established how often achlorhydria is acquired or is a constitutional tendency in this disease. Achlorhydria is the most tangible but not the only evidence of the constitutional background of pernicious anemia. In all probability, pernicious anemia represents a combination of a deficiency disease and a lack of a gastric hormone.

Artichokes in Diabetic Diet.—According to Stein and his associates, the carbohydrates of the jerusalem artichoke are absorbed and utilized by patients with diabetes mellitus of the mild to moderate type, but they are no better tolerated than carbohydrates from other sources. Whenever the authors have obtained an apparent beneficial effect from feeding artichokes there has also occurred a formation of large amounts of intestinal gas arising from bacterial fermentation. Consequently there must have been a simultaneous reduction in the amount of assimilable carbohydrate sufficient to account for the decrease in the amount of sugar eliminated. The reputed therapeutic value of jerusalem artichokes in the diet of the diabetic patient, reported frequently by physicians from their personal experience, is based too often on uncontrolled observations and is a result both of overenthusiasm on the part of the observer and of the tendency of human nature to anticipate results, even at the expense of erroneous conclusions. As moderate amounts of jerusalem artichokes may be given without harm to patients with diabetes mellitus, physicians may well adopt the practice of using this vegetable to furnish variety to their prescribed diabetic diets.

Oxygen in Cardiac Failure.—Barach and Richards treated eight patients suffering from various forms of circulatory failure, with cyanosis, in an oxygen chamber for from three to sixty days, the oxygen in the atmosphere being kept at 45 per cent. The five patients who had congestive cardiac failure with arterial anoxemia were benefited by an atmosphere containing a high degree of oxygen. The striking objective changes were increased arterial oxygen saturation with decrease of cyanosis, diminished pulmonary ventilation and rise in the carbon dioxide levels. Subjectively, there was relief from dyspnea and orthopnea. Three of the patients experienced marked diuresis and disappearance of edema while breathing a high degree of oxygen. The edema returned when the degree of oxygen was lowered, and again disappeared when the oxygen was increased, as long as cardiac insufficiency was present.

Archives of Ophthalmology, Chicago

6: 151-328 (Aug.) 1931

Histology of Fistulas Following Anterior Sclerectomy. S. Holth, Oslo, Norway.—p. 151.
Metabolism of Eye: II. Clinical Applications. W. S. Duke-Elder, London, England.—p. 158.
Chiasmal Symptoms in Intracranial Tumors. L. Davis, Chicago.—p. 180.
Choroideremia: Case. W. R. Parker, Detroit, and F. B. Fralick, Ann Arbor, Mich.—p. 213.
Some Contributions to Art of Localizing Ocular Foreign Bodies. H. A. Goalwin, New York.—p. 221.
Ocular Symptoms in Diagnosis of Tumor of Brain. W. D. Abbott, Des Moines, Iowa.—p. 244.
Unilateral Pigmentary Retinitis. M. N. Beigelman, Los Angeles.—p. 254.
Diagnostic Methods. J. N. Evans, Brooklyn.—p. 262.

Archives of Otolaryngology, Chicago

14: 125-256 (Aug.) 1931

*Specific Prophylaxis of Pneumococcus and Streptococcus Meningitis: I. J. A. Kolmer and K. W. Amano, Philadelphia.—p. 125.
Myoclonic Movements of Larynx and Pharynx: Manifestation of Epidemic Encephalitis. J. H. Childrey and H. L. Parker, Rochester, Minn.—p. 139.
Fatal Hemorrhage Resulting from Extension of Retropharyngeal Abscess to the Deep Vessels of Neck. J. Lifschutz, Chicago.—p. 149.
Study of Tinnitus. R. L. Wegel, New York.—p. 158.
Larynx in Paralysis of Recurrent Laryngeal Nerve. J. I. Farrell, Cleveland.—p. 166.
The Symptom of Vertigo. W. E. Grove, Milwaukee.—p. 177.
*Primary Tuberculosis of Nasal Mucous Membrane. F. Z. Havens, Rochester, Minn.—p. 181.
Pathogenesis of Otosclerosis. K. Wittmaack, Hamburg, Germany.—p. 186.
Melanin in Inner Ear. Dorothy Wolff, St. Louis.—p. 195.

Serum Prophylaxis.—Kolmer and Amano state that the intravenous and intramuscular administration of newer concentrated antipneumococcus serums to monkeys and dogs after intracisternal inoculations of virulent type I pneumococci had some prophylactic value in the prevention of meningitis. The intravenous and intramuscular administration of those antipneumococcus serums to rabbits after inoculation of virulent type I pneumococci into the mastoid and the intratympanal and intracisternal areas had definite prophylactic value in the prevention of meningitis and septicemia. Less definite prophylactic results were observed in rabbits inoculated intracisternally with virulent type II and type III pneumococci. The simultaneous administration of ethylhydrocupreine hydrochloride by intravenous and intramuscular injection and of ethylhydrocupreine base internally probably enhanced the prophylactic activity of the antipneumococcus serums. In rabbits the intravenous and intramuscular injection of scarlet fever antitoxins had some prophylactic value in the prevention of meningitis and septicemia produced by the intracisternal inoculation of virulent hemolytic strains of streptococci. The authors suggest that the routine bacteriologic examination in chronic infections of the sinuses be made before operation and in mastoiditis at operation, to be followed by the prophylactic measures outlined in cases of unusual severity in which meningitis may occur.

Tuberculosis of Nasal Mucosa.—According to Havens, five cases of primary nasal tuberculosis have been observed in the Mayo Clinic. The patients were all 50 years of age or more. Three of the five patients had symptoms of obstruction. All had granular masses involving the septum or turbinates, but in only one instance was ulceration noted. In two cases the septum was perforated, in one instance owing to previous treatment with the cautery. In one case treatment was not given; diathermy was used in one case and radium in three cases. In the case in which treatment was by diathermy, recurrence developed. The region in which the recurrence occurred was further cauterized by the physician in the patient's home community, who has reported that a second recurrence has not taken place after ten months. Two patients treated with radium were free from recurrence when last observed, four and one-half months and four years, respectively, following treatment. The third patient has been treated too recently to allow any statement as to results. On the basis of his observations the author concludes that primary nasal tuberculosis is more common in women in the later years of life than in younger women or in men of any age, that it is characterized by the formation of granulomatous masses on the septum and turbinates, that the symptoms are those of obstruction due to tumor and associated crusting, and that radium and diathermy, or the cautery, are efficient methods of treatment.

Archives of Surgery, Chicago

23: 357-542 (Sept.) 1931

Histologic Studies of Brain in Cases of Fatal Injury to Head: II. Changes in Choroid Plexus and Ependyma. C. W. Rand and C. B. Courville, Los Angeles.—p. 357.
*Significance of Fat Embolism. B. M. Vance, New York.—p. 426.
Normal and Pathologic Repair in Thyroid Gland. N. A. Womack and W. H. Cole, St. Louis.—p. 466.
*Plasma Cell Tumors of Nasal and Nasopharyngeal Mucosa. L. N. Claiborn and H. W. Ferris, New Haven, Conn.—p. 477.
Obstructive Pulmonary Atelectasis. W. E. Adams and H. M. Livingstone, Chicago.—p. 500.
*Calcification in Subcutaneous Tissues: Case Associated with Chronic Atrophic Arthritis. H. J. Shelley, New York.—p. 513.
Forty-Fifth Report of Progress in Orthopedic Surgery. P. D. Wilson, L. T. Brown, M. N. Smith-Petersen, J. G. Kuhns and E. F. Cave, Boston; R. K. Ghormley, Rochester, Minn.; M. S. Danforth, Providence, R. I.; G. Perkins, London, England; A. van Dessel, Antwerp, Belgium, and C. H. Bucholz, Halle, Germany.—p. 521.

Fat Embolism.—Vance calls attention to the fact that severe fat embolism gives rise to two distinct clinical pictures associated with definite pathologic lesions: 1. The pulmonary type, which occurs in the first two days after the injury, is referable to a marked obstruction of the arterioles and capillaries of the lungs. The patients die as the result of asphyxial symptoms. 2. The emboli may pass through the pulmonary capillaries into the systemic circulation and cause definite lesions in the brain, heart and other organs. In such instances, death occurs in from two to seven days from the involvement of the central nervous system; for this reason, this type is known as the cerebral type. The clinical diagnosis of fat embolism is made only occasionally because the complication is rare and because the symptoms may be attributed to some other condition in the body. The asphyxial symptoms of the pulmonary form may be confused with the terminal symptoms of an associated chronic disease of the heart and lungs. This may occur all the more readily because a pulmonary embolism of moderate grade can aggravate lesions of this type. The cerebral type is often overlooked, especially if an injury of the head is present, as the coma from the latter not only may obscure the typical clinical picture but, on occasion, may simulate it. The diagnosis during life is not easy and can be made only if the possibility of fat embolism is kept in mind and if the symptoms and signs that suggest it are not overlooked. For this purpose, hard and fast rules cannot be formulated, but much must be left to the native astuteness of the individual diagnostician.

Plasma Cell Tumors.—Claiborn and Ferris state that twelve cases of plasma cell tumors occurring in the nasal or nasopharyngeal mucosa have been reported in the literature. They review these and add two cases of their own. Of these, all but two occurred in men. Plasma cell tumors of the nasal and nasopharyngeal mucosa are probably much more frequent than the specific literature would lead one to believe. Undoubtedly many growths diagnosed clinically as nasal polypi and not studied microscopically have a predominant plasma cell structure. Accumulations of plasma cells may accompany syphilitic, tuberculous or other chronic inflammatory processes to such a degree as to simulate true neoplasms. Many of the plasma cell tumors are benign neoplasms. Most of the cases that appear malignant are probably manifestations of multiple myelomas.

Calcification in Subcutaneous Tissues.—Shelley reports a case showing peculiar areas of calcification in the subcutaneous tissues. The appearance of the skin and the grating sensation when it was cut would appear to indicate the presence of a fine deposit of calcium in the skin also. Although the majority of the deposits showed a bilateral symmetry, their locations were such that trauma could be the etiologic factor in producing conditions that favor calcification. The deposit on the forearm followed a definite and severe blow in the exact location. The buttocks over the ischial tuberosities and the areas above the greater trochanters receive constant trauma, particularly in a very thin person, as was the patient in the case reported. It is of interest that this condition should be found in a patient with a marked atrophic type of chronic arthritis. The density of the bones is much decreased, even though the skin and subcutaneous tissues contain deposits of calcium. The chemical composition of the blood and the basal metabolism do not appear to have any relation to the local condition, unless the low basal

metabolic rate and anemia give a low carbon dioxide content in the tissues. Conditions favorable to a deposit of calcium salts would then be much more readily created. The author believes that the severe grade of anemia is probably a part of the long standing arthritis.

Arkansas Medical Society Journal, Little Rock

28: 51-66 (Aug.) 1931

Radiation in Carcinoma of Breast. I. H. Lockwood, Kansas City, Mo. —p. 51.
Clinical Symptoms in Prognosis of Tuberculosis. J. D. Riley, State Sanatorium.—p. 55.

Georgia Medical Association Journal, Atlanta

20: 294-334 (Aug.) 1931

Etiology of Mental Diseases. G. L. Echols, Milledgeville.—p. 294.
Acute Appendicitis in Elderly Patients. W. S. Goldsmith, Atlanta.—p. 299.
Neurologic Symptoms of Pernicious Anemia. W. A. Smith, Atlanta. —p. 304.
Pencil-Cap in Left Lower Bronchus: Removal After Six Months. M. Equen, Atlanta.—p. 319.
Sacro-Iliac Pain. L. Thornton, Atlanta.—p. 320.
Cancer: II. J. L. Campbell, Atlanta.—p. 323.
Idem: III. J. L. Campbell, Atlanta.—p. 324.

Johns Hopkins Hospital Bulletin, Baltimore

49: 61-120 (Aug.) 1931

Case of Progressive Neural Muscular Atrophy. S. J. Weinberg, Baltimore.—p. 61.
An Articulation in Large Renal Calculus. R. Baker, Baltimore.—p. 79.
*Importance of Circulatory Balance in Survival of Replanted Limbs. F. L. Reichert, San Francisco.—p. 86.
Derivation of Encapsulated Forms from Nonencapsulated Hemolytic Streptococci. F. B. Jennings, Jr., Baltimore.—p. 94.
On Experimental Production of Superfetation. G. B. Wislocki and H. F. Snyder, Baltimore.—p. 103.
Further Observations on Experimental Production of Ovulation in Rabbit. H. F. Snyder and G. B. Wislocki, Baltimore.—p. 106.

Circulatory Balance in Replanted Limbs.—Reichert describes a replantation experiment that offered a satisfactory method of studying the relative importance of the vascular systems (arterial, venous and lymphatic), and their interdependence in maintaining adequate circulatory balance. After replantation, regeneration of the arteries was demonstrated on the second and third days, of the veins on the fourth and fifth days, and of the lymphatics as early as the fourth postoperative day. Experience with wounds in the World War has definitely indicated that in arterial ligation the incidence of gangrene may be diminished by the simultaneous occlusion of the accompanying vein. By means of the experimental replantation of limbs, the effect of simultaneous ligation of the artery or vein alone has been established chronologically. Gangrene does not develop if the main vein is ligated five or more days after replantation, whereas the artery alone cannot be safely occluded until the fourteenth day. The time interval essential to a safe arterial ligation can be diminished to seven days when a simultaneous ligation of artery and vein is performed. It is significant that the survival of the extremity after arterial ligation depends on the lapse of only a few hours before occlusion of the accompanying vein.

Journal of Immunology, Baltimore

21: 85-170 (Aug.) 1931

*Skin as an Immunologic Organ: Results of Experimental Investigations. L. Tuft, Philadelphia.—p. 85.
Loss of Immune Substances from Body: III. Diphtheria Antitoxin in Human Sweat. J. M. Neill, E. L. Gaspari, R. A. Mosley and J. Y. Sugg, Nashville, Tenn.—p. 101.
Quantitative Aspect of Hypothetical Incorporation of Injected Antigen in Resulting Antibody. S. B. Hooker and W. C. Boyd, Boston.—p. 113.
Comparison of Methods for Determination of Potency as Observed on Group of Horses Immunized Against Diphtheria. G. F. Leonard, New Brunswick, N. J.—p. 117.
On Mechanism of Toxin-Antitoxin Reactions. J. Freund, Philadelphia. —p. 127.
Parenteral Denaturization of Foreign Proteins: V. Effect of Starvation. T. H. Boone, San Francisco.—p. 139.
Rapid and Simplified Method for Conducting the Agglutinin Absorption Test of Hemolytic Streptococci. Sophie Spicer and Rose Rachstein, New York.—p. 141.
Agglutinin Production in Suprarenalectomized Rats. Devorah Khorazo, New York.—p. 151.
Heredity of Agglutinogens M and N of Landsteiner and Levine: II. Theoreticostatistical Considerations. A. S. Wiener, Brooklyn.—p. 157.

Skin as Immunologic Organ.—During the course of some experiments in serum sickness, Tuft observed that the skin seemed to possess an unusual capacity for sensitization to horse serum, this sensitization being accompanied by the production of anaphylactic antibodies, and these experiments suggesting the possibility that the skin may act as an important immunologic organ. Numerous clinical observations bear out the close relationship existing between the skin and processes of immunity in infectious and allergic diseases. These have been further substantiated by many experimental contributions reported in the past few years in the foreign literature, which appear to indicate not only that the skin may have the power to form antibodies but that such antibodies may be specific and that the ability to form such antibodies resides specifically in the skin. The author's experiments do not bear out the latter view, at least for antibacterial antibodies, for from a comparison of the antibody response after intradermal, subcutaneous, intramuscular and intravenous injection of mixed typhoid vaccine, both in man and in the lower animals, it would appear that, though it is possible that the skin participates actively in antibody production, it does not carry out this function exclusively in respect to other tissues or organs. The marked antibody response, particularly after local injection, can be best explained on the basis of a local tissue stimulation of the cells of the reticuloendothelial system, these cells being particularly abundant in the skin. That the active antibody response after intradermal injection may be due in part to a slower absorption of the antigen is entirely possible, although this process may in turn allow for local fixation of a greater amount of antigen and thus greater local stimulation of antibody. The conception of the skin as an important immunologic organ explains in part the satisfactory results of those nonspecific mechanical therapeutic measures employing the skin surface for stimulation and suggests the possibility of utilizing the skin, therapeutically, for measures of specific active immunization in infectious and allergic diseases. It also substantiates the rationale of the various measures of cutanotherapy advised by the French and Germans, and the author's satisfactory experience with typhoid vaccine used intradermally is further evidence of the efficacy of such methods. These could well be extended to other bacteria, particularly such skin-affecting organisms as the pyogenic cocci, with good results.

Journal of Lab. & Clinical Medicine, St. Louis

16: 1047-1150 (Aug.) 1931

Bronchial Asthma: Its Etiology and Control. A. H. Rowe, Oakland, Calif.—p. 1047.
Action of Sodium Ethyl Propyl-Methyl-Carbinyl Barbiturate (Pentobarbital Sodium). E. E. Swanson and H. A. Shonle, Indianapolis. —p. 1056.
Clinical Comparison of Acetylsalicylic Acid Analgesia With and Without Magnesium Oxide. F. A. Simon, Louisville, Ky.—p. 1064.
Influence of Ethyl Alcohol on Gastric Absorption of Phenol in Rabbits. F. L. Dunn and A. M. Perley, Omaha.—p. 1066.
Comparison of Methods Used in Study of Anaphylaxis. B. Ratner and Helen L. Gruehl, New York.—p. 1069.
Electrocardiographic Studies on Chick Embryo Hearts: I. Technic for Recording Electrical Changes in Isolated Chick Embryo Hearts. H. Pollack, Boston.—p. 1080.
Case of Occlusion of Both Coronary Arteries with Rupture of Auricle. J. R. Lisa and A. Ring, New York—p. 1083.
Removal of Serum Protein by Means of Electricity. A. Tasman and A. C. Brandwijk, Utrecht, Holland.—p. 1087.

Journal of Nervous & Mental Disease, New York

74: 137-264 (Aug.) 1931

Cerebral Arteriovenous Aneurysms: Case. F. P. Moersch and J. W. Kernohan, Rochester, Minn.—p. 137.
*Convulsive Manifestations in Huntington's Chorea. J. Notkin, New York.—p. 149.
Emergency Treatment of the Alcoholic. I. D. Williams, New York.—p. 161.
Report of Case of Narcolepsy, with Cataplectic Attacks. F. N. Anderson, Los Angeles.—p. 173.
Pelizaeus-Merzbacher Disease (Familial Centrolobar Sclerosis): Clinical Findings in Two Cases. Yetta Scheftel, Chicago.—p. 175.

Huntington's Chorea.—Notkin reviews cases of Huntington's chorea with convulsive manifestations reported in the literature and describes one personal observation in detail. The presence of various accidental pathologic changes in addition to the usual pathology of Huntington's chorea in the reviewed cases excludes the possibility of a definite localization for the

origin of the attacks. The same may be said for the cases complicated by alcoholism, head trauma and circulatory disturbances. No consistent theory can be offered for the mechanism of the convulsions even in the anatomically pure cases, in view of the presence of pathologic changes in the striatum and the cortex. The lack of similarity in the type of attacks offers the same difficulty in the matter of localization. The organic process in Huntington's chorea which is probably active for years before the appearance of motor and mental manifestations may, however, prepare the terrain for the convulsive mechanisms.

Laryngoscope, St. Louis

41: 523-589 (Aug.) 1931

Neuro-Otologic Examination in Correlation with Brain Surgery. J. C. Keeler, Philadelphia.—p. 523.
Report of Case of Acute Diffuse Labyrinthitis. L. M. Hubby, New York. —p. 543.
O. M. P. C., Mastoidectomy, Septicemia: Jugular Ligation; Recovery; Case. J. A. MacIsaac, New York.—p. 545.
Case of Simple Mastoidectomy Followed by Cerebellar Abscess: Operation, Recovery. H. C. Luke, New York.—p. 547.
Mastoidectomy Complicating Cervical Pott's Disease: Case. A. E. Warren, New York.—p. 551.
Modified Radical Mastoid Operation, Followed by Radical Mastoid Operation with Severe Intracranial Symptoms: Case. J. McCoy, New York. —p. 554.
Fibrosarcoma of Dura, Middle Fossa: Radical Mastoid Operation; Case. E. M. Pope, New York.—p. 555.
Bilateral Perceptive Deafness of Less Common Etiology: 1. Cincophen and Salicylate. 2. Alcohol. 3. Atypical Otosclerosis. V. K. Hart, Charlotte, N. C.—p. 557.
Deformity of Ears and Nose from Lupus Erythematosis Benefited by Intracutaneous T. B. Inoculations: Case.—p. 562.
Scarlet Fever—Sinusitis. F. V. Gowen and T. F. Gowen, Philadelphia. —p. 564.
Retropharyngeal Abscess: Diagnosis and Treatment. W. K. Kistler, Philadelphia.—p. 568.

Michigan State M. Soc. Journal, Grand Rapids

30: 669-738 (Sept.) 1931

Vomiting of Pregnancy. R. W. Wilkins, Ann Arbor.—p. 669.
Postnatal Care. C. E. Toshach, Saginaw.—p. 673.
Roentgen Diagnosis in Gynecology and Obstetrics. I. F. Stein, Chicago.—p. 675.
Atrophic Vulvitis and Carcinoma of Vulva. M. Smeltzer and H. M. Nelson, Detroit.—p. 680.
Relation of Pelvic Inclination, Lumbar Index and Posture to Obstetrics. C. Swanson, Detroit.—p. 684.
Trichomonas Vaginalis Vaginitis. G. Kamperman, Detroit.—p. 686.
Dermoid Cysts of Ovary: Fifty Cases. H. A. Furlong, Pontiac.—p. 688.
"Avertin" in Obstetrics and Gynecology. J. M. Pierce, Ann Arbor. —p. 691.
Eclampsia—Preventable Disease. E. B. Andersen, Grand Rapids.—p. 693.
Obstetric Morbidity. P. W. Willits, Grand Rapids.—p. 697.
Famous Men in Medical History: Early American Medicine and Dr. Z. Boylston. W. H. Steffensen, Ann Arbor.—p. 702.

New England Journal of Medicine, Boston

205: 421-470 (Aug. 27) 1931

Rupture of Male Urethra. G. G. Smith, and E. R. Mintz, Boston. —p. 421.
Early Diagnosis and Early Treatment of Arteriolar (Essential) Hypertension. D. Ayman, Boston.—p. 424.
End-Results in Operative Treatment of Inguinal Hernia: One Hundred and Fifty Cases at Lahey Clinic. R. B. Cattell and C. Anderson, Boston.—p. 430.
Spontaneous Retroperitoneal Hemorrhage. F. W. Marlow, Jr., Boston. p. 432.
Conization of Cervix Uteri with High Frequency Current: Use of Cutting Current in Treatment of Endocervicitis. B. F. Boland, Boston.—p. 434.
Tuberculin Skin Sensitivity in One Thousand Orthopedic Cases. G. De N. Hough, Jr., Springfield, Mass.—p. 437.
Note on Early History of Contraception in America. N. E. Himes, Worcester, Mass.—p. 438.
Massachusetts Medico Legal Society: Some Psychiatric Aspects of Crime. W. Overholser, Boston.—p. 441.
Needles for Treatment of Varicose Veins. F. K. Dutton, Springfield, Mass.—p. 446.
Influence of Inoculated Human Serum on Compatibility Tests. H. E. Smiley, Providence, R. I.—p. 447.

205: 471-516 (Sept. 3) 1931

Report of Unusual Foreign Body in Female Bladder. E. J. O'Brien, Boston.—p. 471.
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30: 349-388 (Aug.) 1931

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10: 207-279 (Aug.) 1931

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27: 601-680 (Aug.) 1931

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24: 261-288 (Aug.) 1931

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Southern Medical Journal, Birmingham, Ala.

24: 659-740 (Aug.) 1931

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Tennessee State Medical Assn. Journal, Nashville

24: 287-326 (Aug.) 1931

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Virginia Medical Monthly, Richmond

58: 283-352 (Aug.) 1931

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Streptococcus Viridans Endocarditis—A Treatise. A. D. Parker, Norfolk. —p. 312.
Office Treatment of Early Enlarged Prostates. W. D. Goodman, Washington, D. C.—p. 314.
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West Virginia Medical Journal, Charleston

27: 337-384 (Aug.) 1931

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Treatise on Fractures. R. H. Jeffrey, Uniontown, Pa.—p. 352.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 369-408 (Aug. 29) 1931

*Breech Presentation: Fetal Mortality and Injuries. G. F. Gibberd.— p. 369.
Antenatal Treatment of Breech Presentations. Gertrude Dearnley.— p. 371.
Management of Breech Labor. A. Bourne.—p. 372.
Progress of Anesthesia. R. J. Clausen.—p. 374.
*Indications for Phrenic Avulsion in Bronchiectasis. W. G. Oakley.— p. 378.
*Infantile Diarrhea. A. V. Neale.—p. 382.
*An Atropine Test in Asthma. Marjorie Gillespie.—p. 384.

2: 409-480 (Sept. 5) 1931

Preliminary Sciences in Medicine: Plea for New Outlook. R. J. S. McDowall.—p. 409.

Breech Presentation: Fetal Mortality and Injuries.—Gibberd believes that in view of the fact that the fetal mortality rate in breech labor is usually underestimated it seems a pity that a classification which tends to hide the dangers has been so widely adopted. It would seem better to regard a "complicated" breech as one in which some additional obstetric abnormality is present, and under the term "uncomplicated" to include primiparas and cases in which extension of the arms occurs. On this basis of classification the gross mortality rate for uncomplicated cases is about 30 per cent for primiparas and about 20 per cent for multiparas, and after making all possible allowances fetal death rates of 28 and 15 per cent, respectively, can be taken as the minimum estimate of the dangers associated with the breech labor itself. Of nonfatal accidents to the fetus, injuries to the limbs occur in about 5 per cent of cases. Early diagnosis of the injury is all important, since early treatment is usually rewarded by excellent recovery. The late results of nonfatal intracranial injuries are at present uncertain, and sufficient reliable observations are not yet to hand to justify one in forming definite views.

Phrenic Avulsion in Bronchiectasis.—According to Oakley, phrenic avulsion in experienced hands is a safe operation, and the complications are more to be feared in theory than in practice. Only in strictly basal and unilateral cases of bronchiectasis can phrenic avulsion be reasonably expected completely to relieve the symptoms. Improvement is to be expected in unilateral bronchiectasis in which the lesions are confined to the bases and not advanced on the better side. In unilateral bronchiectasis in which the lesion extends into upper or mid zones, temporary improvement is the rule, but relapse must be expected unless thoracoplasty is performed. In bilateral basal bronchiectasis with lesions in upper mid zones, little benefit is to be hoped for from unilateral diaphragmatic paralysis. As a preliminary to thoracoplasty phrenic avulsion should always

be performed but should not be allowed to shelve the larger operation in event of a brilliant but temporary cure.

Infantile Diarrhea.—Neale states that the profound and complex upset of tissue metabolism consequent on the dehydration, ketosis and toxemia renders the treatment of infantile diarrhea a matter of urgency. First class nursing attention is essential, and the child must be handled with meticulous care. Fluids must be introduced into the body to replace the excessive loss occurring. In a mild case all milk should be stopped for twenty-four hours and replaced by the use of pure water, one-fourth strength physiologic solution of sodium chloride or weak tea. Ringer's solution of 2 per cent pure dextrose solution by this route is indicated. All these substances do not require digestion and are absorbed rapidly in the upper part of the small bowel, thus affording rest to the lower. Gentle rectal lavage with warm physiologic solution of sodium chloride during this period will relieve gaseous distention and afford comfort to the patient. In severe cases, especially with associated vomiting, sterile fluids must be given by parenteral routes. Rest to the alimentary tract and the injection of fluids parenterally allay the diarrhea and lessen the tissue dehydration, and afford establishment of normal kidney and hepatic functioning to aid in the detoxicating and eliminative processes. Overcoming the problem of conveying water and dextrose to the blood and the tissues plays a great part in the therapy. Water is the drug, *par excellence*, in these disorders. Sterile physiologic solution of sodium chloride can be introduced into the lax subcutaneous tissues in the proportion of about 10 cc. per pound of body weight once or twice during twenty-four hours. In expert hands it is a simple matter to introduce, by slow injection, 5 per cent dextrose solution into the superior longitudinal sinus at the anterior fontanel, or in some cases it may be more convenient to inject the fluid into the internal saphenous vein. Intraperitoneal injection of solution of sodium chloride or dextrose solution is a useful method also. The methods may be combined in individual cases. It is a matter of vast importance to use freshly made pure dextrose solution for these procedures. Blood transfusion is an invaluable measure in some cases and often seems to determine the recovery of the most serious clinical case of infantile diarrhea and dehydration. Whole blood from a suitable donor is given, 15 cc. per pound of body weight being a useful guide, but slow introduction into the longitudinal sinus or a vein is essential, as too rapid injection may cause overdistention of the right side of the heart. A matter of some importance, often overlooked, is the loss of protein contained in the fluid escaping from the body by way of the intestine, even in stools in which blood is not detectable. The efficiency of blood transfusion may have a relationship to this. Parenteral infection must be dealt with, and everything done to check it. Pus should be evacuated when possible. Antidysentery serum given intramuscularly is efficacious in some cases of acute dysenteric ileocolitis. The use of drugs forms a small part in the management of infantile diarrhea. Morphine is dangerous, but small doses of belladonna may be used to check intestinal spasm and pain. On account of the ease with which the body temperature is affected in the infant, a warm room with average humidity is a point of importance. In some severe cases the thermoregulatory mechanism appears to be thrown out of gear, and in such instances the placing of the infant in an open self-regulating warm incubator of the Hess type is of distinct value. Since the return of intestinal digestive power is probably slow, the diet in the recovery stages must be carefully controlled—always remembering that protein is probably the most easily digested and fat the least so at this age. Breast milk, if available at this stage, is of high value. Easily assimilable forms of carbohydrates and buttermilk foods are usually satisfactory until the child gradually reassumes tolerance to a more full and varied diet.

An Atropine Test in Asthma.—Gillespie calls attention to the fact that the usual method of administering atropine in asthma is as tincture of belladonna in a mixture to be taken by the mouth, but the unpleasant dryness of the mucous membranes and the effect on the pupil prevent its continuous use. As a method of estimating the part played by nervous stimuli in inaugurating bronchospasm, a full dose of atropine might be injected subcutaneously at the onset of an attack. In those cases in which contraction of the bronchial muscle is due to direct chemical stimulation of the muscle, atropine would be expected to have no effect, whereas in the truly nervous type the attack would be aborted. In this way the patients whose attacks are due to psychic stimuli alone could be differentiated from those who owe their symptoms to a fundamental chemical alteration of the blood.

Glasgow Medical Journal

35: 81-136 (Aug.) 1931

Report of Asthma Research at Stobhill Hospital, Glasgow. J. Adam. —p. 81.
Mass Experiment in Treatment of Syphilis. R. J. Peters.—p. 97.
Outbreak of Chickenpox in Residential School for Deaf Due to Case of Herpes Zoster. C. M. Smith.—p. 115.

Indian Medical Gazette, Calcutta

66: 423-482 (Aug.) 1931

*Further Observations on Heart Disease in the Punjab. T. A. Hughes and M. Yusuf.—p. 423.
Manifestations of Chronic Yaws. G. H. Fitzgerald and N. C. Dey. —p. 425.
Notes on Diagnosis and Treatment of Ulcus Tropicum. Flora R. Innes. —p. 430.
Case of Thrombo-Angiitis Obliterans. M. N. Pai.—p. 431.
Note on Output and Distribution of Urinary Nitrogen in Normal Punjabi. T. A. Malik and P. N. Sahai.—p. 433.
Nature of Bacterial Substance of an Oral Antidysenteric Vaccine. R. C. Wats and W. I. White.—p. 435.
Application and Use of Larvicides. K. Bose.—p. 436.
Quinine Prophylaxis and Other Notes on Malaria. J. F. James.—p. 440.

Heart Disease in the Punjab.—During the past year, Hughes and Yusuf have noted in the Punjab the occasional occurrence of uncomplicated aortic regurgitation of rheumatic origin. In a series of twenty-one cases of valvular disease there were two patients, aged 18 and 22 years, respectively, with well marked aortic incompetence who gave typical histories of rheumatism but who did not present evidence of a mitral lesion. The aortic leak in each case was detected in the course of routine examination, the patients having been admitted to the hospital on account of lobar pneumonia and chronic malaria, respectively. Their ages excluded acquired syphilis as a cause of the valvular defect, as syphilitic aortitis occurs on an average twenty years after infection. Nor were there any symptoms or signs of congenital syphilis. The Wassermann reaction was negative in both.

Irish Journal of Medical Science, Dublin

68: 337-482 (Aug.) 1931

Report of Rotunda Hospital. B. Solomons, G. S. Smyth, R. V. Dowse, C. L. McDonogh and B. Crichton.—p. 337.
Clinical Report of Coombe Lying-In Hospital, 1930. T. M. Healy, R. M. Corbet and P. Brangan.—p. 416.
Clinical Report of National Maternity Hospital. P. T. McArdle.—p. 443.

Journal of Laryngology and Otology, Edinburgh

46: 589-660 (Sept.) 1931

Eruptions Involving the External Auditory Meatus. H. W. Barber. —p. 589.
Cerebellar Abscess in Childhood: Two Cases in Which Recovery Followed Operation. D. Guthrie.—p. 604.
Anesthetics in Relation to Throat, Nose and Ear Cases. J. W. Leitch. —p. 612.

Journal of State Medicine, London

39: 497-558 (Sept.) 1931

Town and Country Planning in Relation to Health and Amenity. P. Abercrombie.—p. 497.
Encouragement of Public Health Activities as Essential Task of Town Planning and Housing. O. Weigert.—p. 503.
Garden City Principle and Its Relation to Growth of Cities. E. B. Carter.—p. 510.
Coal Miners and Tuberculosis. S. L. Cummins.—p. 526.
Some Aspects of Industrial Occupation Which Especially Concern the Medical Officer of Health. E. W. Hope.—p. 537.
Asbestos Dust and Asbestosis Bodies from Lungs of an Asbestos Worker. W. E. Cooke.—p. 544.
Infant Welfare from Social Hygiene Point of View. K. Coerper.—p. 549.

Kenya & East African Medical Journal, Nairobi

8: 123-148 (Aug.) 1931

Some Remarks on General Health of School Children in Kenya. G. M. Hargreaves.—p. 124.
Incidence and Character of Syphilis and Yaws in Kenya. J. L. Gilks. —p. 131.
Case of Kenya Typhus in Mumias Native. H. C. Trowell.—p. 142.

Practitioner, London

127: 321-411 (Sept.) 1931

Value of Postgraduate Medical Education. H. Simson.—p. 321.
Postgraduate Education in London. R. S. Stevenson.—p. 327.
Treatment of Pulmonary Suppuration. A. J. Scott Pinchin and H. V. Morlock.—p. 335.
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Ludwig's Angina. H. Bailey.—p. 365.
Diagnosis and Treatment of Coronary Thrombosis. G. S. Haynes.—p. 371.
Contribution to Study of Intestinal Infections. J. S. Dick.—p. 381.
Use of Artificial Pneumothorax in Treatment of Pleurisy in Pneumonia. A. B. Taylor.—p. 389.
Wisdom Tooth and Associated Troubles. J. D. Kidd.—p. 397.
Tuberculosis and Goat's Milk. R. I. Pitt.—p. 399.

South Africa M. Assn. Journal, Cape Town

5: 477-512 (Aug. 8) 1931

Diagnosis of Tumors of Spinal Cord. R. Geerling.—p. 479.
Diseases and Injuries of Carpal Bones. L. Herzenberg.—p. 481.
New South African Anopheline. B. de Meillon.—p. 482.
Intracranial Tumors. J. C. Fouche.—p. 483.
Dwalok (Lolium Temulentum) Poisoning. J. Muir.—p. 485.
Insanity in Some British Poets. D. K. Gillis.—p. 486.

Archives de Médecine des Enfants, Paris

34: 461-524 (Aug.) 1931

*Acute Pulmonary Edema in Measles. P. Nobécourt and J. Lereboullet.—p. 461.
*Invariability of Incubation Period in Measles. P. Lereboullet and P. Baize.—p. 475.
*Incubation Period in Measles. P. Lereboullet and P. Baize.—p. 475.
Physical Chemistry of Blood. C. C. Ducco.—p. 484.
Prenatal and Natal Clinics at Saint-Ouen Dispensary. R. Daunay.—p. 490.

Acute Pulmonary Edema in Measles.—Nobécourt and Lereboullet consider bronchopneumonia the chief complication of measles; its principal varieties, particularly the hyperacute form of suffocating catarrh, have been described extensively. Acute edema of the lungs is a complication that is less known but not exceptional—the authors have observed four cases in six months. It is often confused with hyperacute bronchopneumonia. Acute edema merits attention since, unlike hyperacute bronchopneumonia, it is amenable to treatment administered early enough. Pulmonary edema in measles is particularly frequent during the seasons for the respiratory group of diseases and influenza epidemics. That acute pulmonary edema occurs in the course of infectious diseases of infancy has been known a long time. Its onset in measles varies; usually it appears at the acme of the disease period, the second day, but at times it is not noted until the sixth day of the eruption in cases in which the measles has seemed to be evolving normally. It is characterized clinically by dyspnea, cyanosis, fitful coughing, frothy saliva, accelerated pulse and rising temperature. An exaggerated sound in the thorax due to the emphysema, feeble respiratory sounds, râles in both lungs, accelerated heart action—such a clinical picture should be feared. This condition is followed by exhaustion and the patient dies of asphyxia and cardiac insufficiency. It is the belief that the edematous and inflammatory conditions coexist. Measles is a septicemia caused by the virus morbilli. Infection takes place in the respiratory tract with inflammation of the nasal, pharyngeal, tracheal and broncheal mucosa; hence the congested and edematous conditions of the lungs. Bacteriologic research is necessary to establish the respective rôle of measles and secondary infection in the etiology of acute pulmonary edema. If early edema may depend on virus morbilli, later edema may be caused by agents of secondary infection. The authors discuss various hypotheses and mention the possibility of local predisposition. Treatment should consist of clearing the infiltrated or congested lungs, strengthening the heart and encouraging blood circulation. Bleeding, hydrotherapy, heart stimulation and oxygen therapy are discussed. Oxygen therapy seems to the authors to be most effective but may be combined with the other methods. Constant vigil by competent attendants is emphasized.

Incubation Period in Measles.—Lereboullet and Baize report twenty-nine cases, paying particular attention to the length of the period of incubation, increase in temperaure, loss of weight, and polynucleosis of the blood. Their observations lead them to the following conclusions: The incubation of measles is not always silent as it is commonly believed. Among the numerous symptoms ascribed to this period, some are rare or nonexistent; others, as the elevation of temperature or polynucleosis of the blood, are more important.. It is doubtful, however, whether these symptoms can be of sufficient help in the early diagnosis of measles; and, being inconstant, there is always the risk of overlooking them. But even if the symptoms of the incubation period are of slight prophylactic value, their physiopathologic interest is undeniable. It is believed that, beginning with the onset of the infection by the measles organism, there is a struggle and a slight but distinct reactive phenomena. After an interval of some twelve days this struggle gives rise to more definite symptoms of the period of invasion with high fever, oculonasal catarrh and the distinctive exanthems. Why is the incubation period so remarkably fixed? One can agree with Jürgensen that the measles organism itself cannot begin its devastating work until it is sufficiently developed to invade the entire system. One can also agree with Pirquet that in the incubation period a lapse of time (from eight to twelve days) is necessary for the production of antibodies; and when these appear in sufficient quantity, there is microbic lysis, production of toxins and consequent fever, exanthems and leukopenia, with the measles syndrome confirmed. Aside from these hypotheses, what the authors wish especially to stress, beginning with the first days of the period of incubation, is the clinical manifestations, fever, or the hematologic manifestations, polynucleosis, that mark the onset of the infectious disease.

Lyon Chirurgical

28: 385-528 (July-Aug.) 1931

Physiologic Problem of Cholecystectomy. P. Mallet-Guy and F. Anthoine.—p. 385.
*Treatment of Ankylosing Polyarthritis by Parathyroidectomy. R. Leriche and A. Jung.—p. 408.
Secondary Tumors of Pelvic Bones. M. L. Tavernier.—p. 438.

Ankylosing Polyarthritis.—Leriche and Jung report the results of studies carried out in twenty cases of ankylosing polyarthritis, which they divide into three groups thus: (1) cases of infectious or gouty origin, which always have a normal calcemia; (2) cases that are of neither infectious nor gouty origin and are sometimes accompanied by hypercalcemia (these cases, in the authors' opinion, are caused by hyperparathyroidism), and (3) those that are of neither infectious nor gouty origin and which are accompanied by hypocalcemia or normal calcemia. Neither the roentgenogram nor the distribution of ankyloses allows one to differentiate these groups. Regardless of the etiology, the lesions may be identical. Parathyroidectomy improves the polyarthritides with hypercalcemia, lowering at the same time the calcium level of the blood. It does not have a favorable effect on the polyarthritides with a normal calcemia, although it decreases the amount of calcium in the blood. It seems certain that local calcic (osteo-articular) changes are not in direct relation with the amount of total calcium in the blood serum because the anatomic and roentgenologic syndrome of ankylosing polyarthritis remains the same regardless of the cause and regardless of whether it is accompanied by hypercalcemia, hypocalcemia or by normal calcemia. The local calcic changes and the variations in the calcium content of the blood are two signs that may or may not coexist. Laws pertaining to their reciprocal relations are not known. Nevertheless the following reasons seem to indicate that there exists an ankylosing polyarthritis that is caused by hyperparathyroidism: (1) There exist ankylosing polyarthritides with hypercalcemia in which an infectious or gouty origin cannot be demonstrated; (2) parathyroidectomy improves these cases by a parallel decreasing of the calcium content of the blood, and (3) parathyroidectomy improves only the cases with hypercalcemia. Intervention is indicated in cases of ankylosing polyarthritis with hypercalcemia; one may either perform a parathyroidectomy or resect the terminal part of the inferior thyroid artery and the origin of the terminal branches. In their three cases in which operation was performed the authors obtained the following results: in two, improvement that has lasted for four months, and, in one, recidivation that occurred at the end of six weeks.

Nourrisson, Paris

19: 209-271 (July) 1931

*Anemia in Rickets. A. B. Marfan.—p. 209.
Cutaneous Diphtheria in Nurslings. H. Stux.—p. 228.
Suppurative Meningo-Ependymitis or Pyocephalus in the New-Born. R. Debré, G. Semelaigne and R. Broca.—p. 246.

Anemia in Rickets.—Marfan states that although it is known that anemia exists in rachitic conditions, opinions vary as to the reason for that condition. After a thorough discussion of the different theories now existing, he concludes that the anemia is not a result of the diseased bone marrow which characterizes rickets but a consequence of the same conditions that bring about rickets. The question of anemia in rickets is narrowed down to that of the nature of the pathogenesis of the disease itself and it is with that idea in mind that one must study it.

Presse Médicale, Paris

39: 1061-1076 (July 15) 1931

*Roentgen Therapy in Dry Gangrene. A. Zimmern, J. A. Chavany and R. Brunet.—p. 1061.

Dry Gangrene: Roentgen Irradiation of Suprarenal Region.—Gangrenous processes are frequently reported in obliterative arteritis. With stress on dry gangrene, Zimmern and his co-workers report eight case histories of this condition. The complications incident to dry gangrene may be senile, diabetic, syphilitic and diabetic-syphilitic arteritis, as well as arteritis praecox. Involvement of the periarterial sympathetic system is to be considered in many gangrenous conditions. Traumatism, cold, humidity, smoking and lowering of body tonus are some of the contributory causes. It is the belief of the authors that dry gangrene may be due to hypersuprarenalism. Unilateral suprarenalectomy and suprarenal roentgen therapy may relieve this possible hyperfunctioning of the suprarenals. However, the mortality (13 per cent) and the risk of a resulting hyposuprarenalism make suprarenalectomy dangerous. Roentgen therapy by reason of its moderate action on the endocrine glands may well supplement suprarenalectomy. The important diagnostic symptoms in dry gangrene are the coloration of the tissues and the temperature. The zone most affected still keeps its livid or dark appearance after irradiation but soon takes on a distinct firmness. The diffuse cyanosis around the lesion pales and soon assumes an almost normal appearance. Complete cure takes place in several weeks or two to three months according to the severity. Pain is decreased sometimes in one or two treatments, although some patients continue to suffer locally.

39: 1077-1092 (July 18) 1931

*Serologic Reactions in Syphilis: Antigenic Function of Lipoids. R. Demanche.—p. 1077.
Compound Fracture of Leg: Thirteen Cases. E. Bressot.—p. 1080.

Serologic Reactions in Syphilis: Antigenic Function of Lipoids.—All serologic reactions in syphilis may be viewed as colloid phenomena. According to Demanche they constitute examples of the flocculation of one colloid, the lipoid antigen, with another, the serum albumin. Recent researches tend to prove that the antigenic function is not due exclusively to albumins but to other organic substances, particularly the lipoids. It is known that the antigenic function is manifested in two ways: (1) immunizing power—the formation of antibodies in the blood of a living person inoculated with antigen; (2) the reaction in vitro—the ability of the antigen to combine in the test tube with the corresponding antibody and to react with it so as to fix the complement or bring about flocculation. It has been found that a syphilitic liver, rich in spirochetes, is antigenic whereas an alcoholic extract is not. However, the alcoholic extract combined with a foreign albumin will develop antigenic properties. Thus lipoids as well as proteins possess antigenic properties, not only reacting with antibodies but engendering these antibodies. The lipoid-albumin complex contains the specific lipoid together with the nonspecific protein. The activity of the lipoid antigen depends not only on the chemicophysical state but also on the proper colloid dispersion. In interpreting the reactions of colloid suspensions of lipoids, one must not lose sight of the rôle of the proteins. A secondary reaction due to the proteins may be so strong as to be manifested in the specific antigen antibody reaction and bring about a nonspecific fixation of complement and flocculation. These pseudoreactions due to the lack of stability of proteins and accompanying processes of cellular destruction may be met in conditions such as pregnancy, tuberculosis, malignant tumors, severe pyrexia and cachectic states. It is the duty of serologists to prevent these pseudoreactions. This can be done only through much empiric experimentation.

39: 1117-1132 (July 25) 1931

*Latent Syphilis of Testis. E. Bertin, P. Nayrac and A. Breton.—p. 1117.
Sulphur and Growth. L. Binet and A. Arnaudet.—p. 1120.

Latent Syphilis of Testis.—Bertin and his associates state that this condition often passes unrecognized. It is generally a question of old syphilitic patients. But they are perfectly well; their sexual functions are normal and they do not have testicular difficulties. There seems to be integrity of the secondary sex characters. After a discussion of many clinical and anatomopathologic conditions the authors conclude that the doctrine of latent syphilis is a distinctly individual entity. The social importance of the disease in the explanation of some barren marriages and frequent dystrophies of infants born of syphilitic parents is evident.

39: 1165-1180 (Aug. 5) 1931

*Intestinal Perforation in Typhoid. C. Lenormant and P. Wilmoth.—p. 1165.
*Epicondylitis Among Fencers and Tennis Players. Conzette.—p. 1167.

Intestinal Perforation in Typhoid.—Lenormant and Wilmoth stress the seriousness of this complication. Three per cent of all typhoid cases are of this type, but many masked perforations are found at necropsy. It is usually considered that 95 per cent of the cases are fatal, but even this mortality may be too low. Perforation is observed in all stages and forms of typhoid. Early intervention (sixth to tenth hour) is important. Typhoid patients should be watched for more or less acute abdominal pain, a certain degree of abdominal contraction, and a sudden modification in the pulse or temperature. Chances of cure are greater in convalescent and ambulatory forms of typhoid in which the patient's resistance is greater. The authors advise suture in preference to fistulization and resection—it is easy and rapid and is executed under local anesthesia. To prevent possible tearing, the sutures are fixed to the wall of the abdomen. In multiple perforation, exteriorization is advised. The authors submit the results of ten personal case observations. They admit that the results (three cures) are not convincing but may prove of value when added to other already published results.

Epicondylitis Among Fencers and Tennis Players.—Conzette asserts that this condition consists of pain in the apophyseal regions, localized most often in the inferior part of the humerus, without appreciable bone lesions demonstrated by palpation or roentgenoscopy. It is a periosteal pain due to a contraction of the long muscles, especially the extensors, acting on the periosteum through the intermediary of their tendinous and aponeurotic expansions, which are anastomosed with the fibers of the external layer of the periosteum. The condition is a disease of the adult, more frequent in men than women, especially those taking part in sports, but also those workers obliged to extend their hands, as washerwomen, coachmen and dishwashers. Epicondylitis is more common at the age of from 30 to 50 when muscular capacity is greatest. The more muscular are susceptible. However, the author cannot explain the variable predisposition. Since epicondylitis includes manifestations due to tuberculosis, syphilis and Schlatter's disease the name apophyseal periostalgia is recommended for this condition.

39: 1181-1196 (Aug. 8) 1931

*Paternal Transmission of Tuberculosis. P. Nayrac and A. Breton.—p. 1181.
Prophylaxis in Industrial Emanations. H. Cristiani.—p. 1184.
Complete and Chronic Uterine Inversion. Ho-Dac-Di.—p. 1186.

Paternal Transmission of Tuberculosis.—Nayrac and Breton believe that the recognition of the ultravirus in tuberculosis has modified profoundly the conception of heredity with regard to the bacillus. Far from denying the existence of ingrained heredity, one now recognizes the important rôle of the mother in the transplacental infection in utero of the fetus by a filtrable virus. This recent belief has come as a conse-

quence of a complete revision of certain classic ideas. The infestation of the fetus by the filtrable virus does not guarantee the inevitable ingrained heredity, without hope of all prevention; on the contrary, it seems to create an immunity, feeble, it is true, but able to explain the great resistance of young infants to first infection. The authors have been carrying on researches on the human and the animal testis for a number of years. They compare syphilis and tuberculosis, finding the lesions histologically specific but the mode of inheritance similar. The morphologic changes in the tuberculous testis represent to them an extreme state of toxic action. Spermatozoids in the majority of pulmonary tuberculosis patients are from acutely injured testes of abnormal structure. In the personal equation of the infant there exists a paternal heredity factor in regard to tuberculosis. Biology can prove its existence but cannot foretell the consequences—whether a question of creating a constitutional feebleness, a dystrophy later to be revealed or, on the contrary, the production of humoral defensive reactions. General pathology may prove both hypotheses to contain part of the truth but they are still hypotheses. Morphologic studies should be replaced by bacteriologic experimentation and especially by clinical statistics in order to push this problem forward. The infant of a patient with pulmonary tuberculosis is born of an abnormal spermatozoid. This is the solid fact to which is tied the question of paternal heredity of tuberculosis.

Archivo Italiano di Chirurgia, Bologna

29: 361-468 (June) 1931

Membranous Formations About the Colon. C. Luccioni.—p. 361.
*Familial Elephantiasis of Gums. A. Mirolli.—p. 401.
Experimental Researches on Resection of Lesser Curvature of the Stomach. C. Parzani.—p. 417.
Carcinomas of Lesser Curvature of Stomach, Developing on Previous Chronic Ulcers. G. Calissano.—p. 437.
Vascelinomas. T. Biancheri.—p. 449.
Puncture Wound of Epigastrium with Lesions of Liver, Diaphragm, Pericardium and Heart; Operation; Recovery. I. Ott.—p. 462.

Familial Elephantiasis of Gums.—Mirolli describes two cases of gingival elephantiasis in two persons belonging to the same family, in which twelve out of twenty-nine members presented more or less marked symptoms of the disorder. He does not consider it necessary (basing his opinion on the genealogical picture) to cite the mendelian theory to explain the hereditary nature of the disease in these two patients the study of which leads him to believe that among the manifest or latent symptoms of the physiopathology of the hypophysis one must include gingival elephantiasis. He uses the term "elephantiasis" both because it has the advantage of indicating frankly the anatomoclinical nature of the lesion, leaving open the etiopathogenic questions, and because of the dilatation of the lymphatic vessels of the papilla, which is an important histologic characteristic of true elephantiasic states. Histologic researches in one of the two cases revealed thickening of the epithelium. The author reviews all the cases of gingival elephantiasis known to him, and gives a bibliography of the disorder.

Clinica Medica Italiana, Milan

62: 527-624 (June) 1931

*Aplastic Anemia and Arsphenamine Intoxication. C. Semenza.—p. 527.
Neurosympathetic Tonus: Pharmacodynamic Substances and Gastric Functioning. G. Bagnaresi.—p. 542.
Achylic Anemias and Anemias of Pernicious Type. C. Papp.—p. 569.
Peculiar Effects of Thyroxine on Glycemia. W. Melocchi.—p. 586.
Determination of Organic Acids in Urine. G. Barbaro-Forleo.—p. 594.

Aplastic Anemia and Arsphenamine Intoxication.—Semenza reports two cases of arsphenamine intoxication with a picture of grave blood disease, characterized by erythropenia, leukopenia and thrombopenia, together with hemorrhagic manifestations. In the first case, the anemic syndrome developed following intense treatment with arsphenamine, with manifestations chiefly hemorrhagic and with symptoms of aplastic anemia. No therapeutic measures could check the progressive and fatal course of the disease. Repeated transfusions of blood gave only temporary relief. In the second case, the arsphenamine intoxication had an aggravating effect on the disease previously diagnosed as aplastic anemia. No therapeutic measures brought any benefit, including liver therapy. The transfusions of blood improved notably the general condition and the state of blood crasis, with manifest attenuation of the hemorrhagic syndrome. The benefit was of short duration, for after a few days the various symptoms appeared with such gravity as to require renewed transfusions. In this case splenectomy was tried, owing to the fact that other forms of treatment proved inefficacious, and in consideration of the modern views in regard to the inhibitive influence that the spleen exerts on the activity of the medullary tissue. No treatment availed to arrest the fatal course, which is the more grave and rapid the more profoundly affected the blood crasis is. The author emphasizes the need of systematic examinations of the blood during arsphenamine treatment in subjects with symptoms of functional deficiency of the hematopoietic organs.

Clinica Ostetrica, Rome

33: 401-464 (July) 1931

*Application of Dick Test to Obstetrics. E. Ponzi.—p. 401.
Hernia of Adnexa Uteri. F. Contarini.—p. 407.
Metrorrhagia Due to Falsely Diagnosed Cervical Polypus, Which Gave Rise to Useless Hysterectomy. F. Patti.—p. 413.
Medicolegal Opinion as to Culpable Homicide in Lesions Produced by Forceps. A. Bertino.—p. 417.
Intravenous Injections of Sodium Citrate in Gynecologic Hemorrhages. F. Pasquini.—p. 432.
Late Hemorrhages of Puerperium and Diagnostic Errors with Regard to Placental Retention. P. Gaifami.—p. 445.

Application of Dick Test to Obstetrics.—Ponzi concludes from the outcome of tests applied to 250 gravidas and repeated in a series of 100 women, also after labor, that in pregnancy the Dick test has a high percentage of positivity and that often pseudoreactions intervene.

Policlinico, Rome

38: 989-1024 (July 13) 1931. Practical Section

*Use of Leeches in Postoperative and Puerperal Phlebitis. G. Rossi.—p. 989.
Polyneuritis Due to Pregnancy. A. Brugi.—p. 995.

Use of Leeches.—Rossi reports eleven cases of phlebitis—eight cases of postoperative, one of puerperal and two of primary phlebitis—in which the application of leeches (according to the Termier method) gave constantly rapid and brilliant results: (1) arrest and retrogression of the edema; (2) rapid reduction of the pain, the sense of weight characteristic of the disease, and cutaneous sensitiveness; (3) rapid decline of the temperature and (4) absence of untoward incidents. The author favors the method.

38: 1025-1064 (July 20) 1931. Practical Section

*Treatment of Pleural Empyema in Children. U. Ferri.—p. 1025.
Uterus Pseudodidelphys with Divided Vagina and Right Hematocolpos. A. Passaggi.—p. 1030.

Treatment of Pleural Empyema in Children.—Ferri dwells particularly on surgical treatment (rib resection and pleurotomy) and his recent methods of medical treatment with intrapleural injections of sodium taurocholate and ethylhydrocupreine hydrochloride. He reports some of his personal observations and favors early treatment with ethylhydrocupreine or taurocholate in empyema due to pneumococcus, but in the types due to other micro-organisms the preferred treatment remains surgical, particularly rib resection, but avoiding, when possible, too early intervention. To improve the general condition, he recommends early and repeated evacuative puncture.

Riforma Medica, Naples

47: 1025-1064 (July 6) 1931

Indications for New Operation on Stomach if Gastric Disorders Persist. D. Giordano.—p. 1027.
*Multiple Abscesses of Liver Complicating Intrahepatic Calculosis. G. C. Parenti.—p. 1031.
Malignant Evolution of Nevus Verrucosus: Case. V. Silvestrini.—p. 1037.

Multiple Abscesses of Liver Complicating Intrahepatic Calculosis.—Parenti's patient, aged 59, had abdominal disturbances with a clinical picture of extrahepatic calculosis. The condition terminated in septic pyemia. At necropsy there were found many abscesses of the liver, intrahepatic diffuse calculosis and a large pararenal abscess. In this case certain dyscrasic disturbances of the bile and the migration of stones rendered the primary extrahepatic condition intrahepatic. There was an interdependence between calculosis and the formation of intrahepatic abscesses whose two principal factors were: the biliary

stasis caused by calculosis and the action of the intestinal bacteria, which had become more virulent on account of the stagnation of the bile. The pararenal abscess formation was secondary to the suppurative process of the liver. The transmission of the infection from the lower aspect of the right lobe of the liver to the pararenal area was due to the proximity of both areas.

Rivista di Clinica Medica, Florence

32: 201-240 (March 15) 1931

*Glycemia in Exophthalmic Goiter. D. Vettori.—p. 201.
Case of Cancrocirrhosis, with Pylethrombosis as a Terminal Episode. E. Liesch.—p. 218.

Glycemia in Exophthalmic Goiter.—Vettori examined, under the best technical conditions, with the modified Bang micromethod, the blood in seven cases of exophthalmic goiter and five aborted cases with symptoms of exophthalmic goiter or with polyglandular syndromes. He found a frank hyperglycemia (fasting) in 33 per cent of the cases, a perceptible increase of blood sugar in 50 per cent and in the remaining 17 per cent blood sugar values ranging around normal. The degree of hyperglycemia did not appear proportional to the intensity of the exophthalmic goiter or to the concomitant insufficiency of the sexual glands, or in direct relation with the increase of basal metabolism. After giving a critical survey of the various theories proposed, all founded on the multiplicity of antagonisms and of harmonic correlations, the author is inclined to explain hyperglycemia in exophthalmic goiter as due to a retarded secretory activity of the pancreas, whether it is due to a true insufficiency of the injured organ or rather to the inability of that organ (liver) to restore the efficacy of the pancreatic secretion. It is possible also that hyperepinephrinemia, if it exists, tends to accentuate the hyperglycemic disequilibrium.

Rivista di Clinica Pediatrica, Florence

29: 473-552 (June) 1931

Modification of Moro Skin Test. M. Scarzella.—p. 473.
*Number of Cases of Cephalic Tetanus in Children. B. Trambusti.—p. 487.
Frequency of Paralysis of Uvula in Measles. D. Corda.—p. 506.

Cephalic Tetanus in Children.—Trambusti reports six cases of tetanus with circumscribed cephalic manifestations and discusses them in detail, from the diagnostic and pathogenic point of view, in relation to the chemical picture of the condition termed "Rose's cephalic tetanus," which is characterized by three symptoms: trismus and spasms of deglutition, with paralysis of the seventh nerve on the side of the lesion. He thinks he can demonstrate that this morbid condition is more frequent in children than is generally supposed, and therefore calls the attention of pediatricians to the condition. He emphasizes the relatively benign nature of the prognosis established in the cases observed and the value of serotherapy applied exclusively intramuscularly, if the treatment is undertaken early and the serum is administered in generous doses.

Prensa Médica Argentina, Buenos Aires

18: 73-116 (June 20) 1931

Splenectomy in Thrombocytopenic Purpura Hemorrhagica. A. Ceballos and H. Taubenschlag.—p. 73.
*Abdominal Palpation with Sound in Stomach for Diagnosis of Mobile Intra-Abdominal Tumors. A. J. Heidenreich and G. L. Heidenreich.—p. 79.
Normal and Pathologic Tonsils in Childhood. J. Damianovich.—p. 86.
Several Aspects of Syphilis as Observed in Dermatosyphilologic Clinics. J. L. Carrera.—p. 96.
Hernia of Diverticulum of Bladder: Case. E. F. Malbec and F. Basch.—p. 100.

Abdominal Palpation in Mobile Intra-Abdominal Tumors.—The Heidenreichs state that abdominal palpation made while the patient has a tube in his stomach is of value for the clinical diagnosis of mobile tumors in the abdomen. Both the tube and the gastric tumor move synchronously with respiration. In patients with gastric disturbances of long duration the aggravation of the symptoms and the appearance of a syndrome of intra-abdominal tumor and derangements of the common bile duct such as jaundice, choluria and acholia are indicative of the presence of an ulcer of slow evolution situated on the posterior surface of the stomach. Neoplastic degeneration of the ulcer results in a tumor formation at the site of the ulcer, the tumor developing freely into the epigastrium. Tumor cells migrate also to the head of the pancreas. The extrinsic compression of the bile ducts by the swollen head of the pancreas produces the biliary symptoms. The clinical diagnosis of this double tumor, made by the authors' method is confirmed by roentgen examination. During the operation made under local anesthesia the movement of the gastric tumor under respiration is proved. The author reaches the following conclusions: Gastric tumors even if adherent to the pancreas have an axial respiratory movement. Gas distention of the stomach causes the gastric tumor to be displaced even though it is adherent to the pancreas. A gastric tumor is synchronously displaced under respiration in the same direction as that of a gastric tube placed in the stomach.

Semana Médica, Buenos Aires

38: 81-164 (July 9) 1931. Partial Index

*Bernard-Horner Syndrome During Evolution of Epithelioma of Upper Lobe of Lung. C. da Rin.—p. 81.
Suppurative Strumitis and Thyroiditis: Diagnosis and Treatment. J. M. Jorge.—p. 92.
Sequelae of Curettage of Uterus Done Immediately After Delivery. A. Chueco.—p. 100.
Meaning and Importance of Dynamic Medium Blood Pressure in Hyperpiesis, Eupiesis, Cardiac Insufficiency and Hypopiesis. C. P. Waldorp, C. A. Bordo and S. Genijovich.—p. 104.
Anatomy of Third Ventricle. M. Balado.—p. 121.
Symphysiotomy in Primiparas: Indications. D. A. Rojas.—p. 131.
Chronic Myelogenic Leukemia Complicated by Pleurisy and Ascites. J. Orgaz.—p. 136.
Relation of Anterior Lobe of Hypophysis to Female Reproductive Organs. J. A. Viriot.—p. 144.
Roentgen Photometer: New Apparatus for Obtaining Roentgenograms of Uniform Distinctness and Density. C. Heuser.—p. 152.

Bernard-Horner Syndrome During Evolution of Epithelioma of Lung.—Da Rin reports the case of a man, aged 40, who during the evolution of an epithelioma of the upper lobe of the left lung presented the Bernard-Horner syndrome. In the pathogenesis of the syndrome in cancer of the lung, the pressure produced on the cervical sympathetic ganglion by the tumor or its metastases is the most important factor. In the author's case the anatomic observations proved that the primary tumor had developed in the left bronchus and had extended to the lung and to the pleura. No cases of Bernard-Horner syndrome complicating cancer of the lung have been previously reported. It is probable that they have existed but that attention was not given to them on account of the fatal prognosis for the patient's life which the condition represents, especially when the patient is seen during the final stages of the disease.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

88: 335-422 (July) 1931. Partial Index

Placenta as Incretory Organ and Its Biologic and Pathologic Influences on Female Organism. L. Seitz.—p. 335.
What is Meant by Stroganoff's Procedure in Eclampsia? P. Rissmann.—p. 360.
Does Death of Child During Confinement Reduce a Woman's Desire for More Children? Emilie Dauber.—p. 361.
Ectopic (Intramural) Pregnancy of Nearly Eight Months Duration with Living Fetus. E. B. Liebinsohn.—p. 378.
Heavy Metals in Treatment of Malignant Tumors. B. Liegner.—p. 386.

Münchener medizinische Wochenschrift, Munich

78: 1207-1246 (July 17) 1931

*Results of Diphtheria Prophylaxis in Munich. M. Pfaundler.—p. 1207.
Observations on Variations in Character of Diphtheria: Problem of Mixed Infection. R. Hopmann and A. Panhuysen.—p. 1208.
Transmission of Fowl Tuberculosis to Human Beings. M. Klimmer.—p. 1212.
Pulmonary Tuberculosis in Adults Caused by Bovine Infection (Inhalation). Schultes.—p. 1215.
Use of Atropine to Detoxify and Increase Efficacy of Circulatory Drugs. C. J. Keller and H. K. Meyer.—p. 1216.
*Bite Injury by Rabid Badger. F. A. Lentze.—p. 1218.
Roentgen Therapy in Children's Diseases: Indications and Results. W. Birk.—p. 1219. C'cn.
Examination of Rectum for Fissures. F. Crämer.—p. 1223.
Calcium Therapy of Phlyctenular Keratoconjunctivitis. M. Cremer.—p. 1223.
Treatment of Leukorrhea. Bercke.—p. 1223.

Diphtheria Prophylaxis in Munich.—Pfaundler reports investigations on the diphtheria morbidity and lethality rates among children who had been vaccinated against diphtheria and

he compares these with those of children who had not been so vaccinated. It was found that the morbidity rate was considerably reduced by the prophylactic vaccination. Whether the mortality rate was also reduced cannot be stated with certainty on the basis of these statistics for only 18 of the 2,485 children who had been vaccinated contracted diphtheria, and none of these died. Among the children who had not been vaccinated and contracted diphtheria, one in twenty-four died. Reports from other large cities in which larger numbers of cases were investigated show that prophylactic vaccination against diphtheria reduces also the mortality rate.

Bite by Rabid Badger.—Lentze reports the case of a man who while working in the fields was suddenly attacked by a badger. Because the man was wearing thick clothes the bite resulted only in superficial abrasions. It was suspected that the badger might have rabies and a microscopic examination of its brain actually revealed the presence of Negri bodies. The man was given antirabic treatment and the bite did not have any serious results. In conclusion the author points out that rabies is comparatively rare in badgers but should always be considered whenever animals which are ordinarily shy, such as badgers, foxes or polecats, attack human beings suddenly and without provocation.

Zentralblatt für Chirurgie, Leipzig

58: 1809-1872 (July 18) 1931

Leukoplakia of Tongue and Development of Cancer. Jenckel.—p. 1810.
*Danger in Treatment of Bone Injuries Following Electrical Traumas. P. Frühmann.—p. 1815.
*Prognosis and Therapy of Pneumococcus Sepsis. E. Glass.—p. 1817.
*Enlargement of Mammary Gland Following Prostatectomy. E. Kondoleon. —p. 1821.
Is Surgical Treatment Justified for Purely Nervous Disorders? A. Cornelius.—p. 1822.
*Aspects of Umbilical Colics in Children. J. Philipowicz.—p. 1823.
Conservative Treatment of Renal and of Ureteral Calculi. W. K. Frankel.—p. 1825.

Treatment of Bone Injuries Following Electrical Traumas.—Frühmann reports the case of a woman, aged 34, who while telephoning sustained a shock from an electric lamp. As a result of this she had intense pains in her right shoulder and could not move the arm. The patient had not fallen or hurt herself in any other way, but roentgenoscopy revealed a dislocation of the shoulder joint and an avulsion of the greater tubercle, but no other changes. When attempts were made to reduce the dislocation, the neck of the humerus fractured. Surgical treatment was resorted to and the fracture healed, so that the patient is now able to use her arm again. In discussing as to how, in spite of careful manipulation, the fracture came about, the author points out that although much is known in regard to the injurious effects of the electric current on the soft parts, little is as yet known about the bone injuries. Jellinek discovered extremely fine fissures in bones that had been exposed to strong electric current. He designated these fissures as scissions. In the roentgenogram they are frequently not detectable, at least immediately following the accident, but after several days they may become visible. Later they usually disappear again. These fissures or scissions have been demonstrated in the bones of patients who have died as the result of a contact with a powerful electric current, and it has also been possible to produce them in animal experiments. Electropathologic specimens show that they develop not only in organic substances such as bones and wood but also in inorganic substances such as glass, porcelain and metal. It is probable that they are purely mechanical effects of the current. In the conclusion the author stresses that if in case of an electric trauma there are signs of bone involvement, the bone should be treated with great care and should be immobilized.

Prognosis and Therapy of Pneumococcus Sepsis.—Glass describes the clinical history of a girl, aged 9, who for six months received treatment for pneumococcus sepsis. In spite of the fact that the process persisted for six months, that new abscesses always developed in different locations, that both pleura and the abdominal cavity were involved and that an abscess developed on the buttocks, cure was nevertheless effected. From this the author concludes that the prognosis in such cases is not always unfavorable. With regard to the therapy he states that in pneumococcus suppurations an expectant attitude until localization has taken place is better than early operative treatment. One should also avoid attacking immediately every new focus and rather await the formation of other foci and then choose the method and the time of intervention so that these usually extremely weakened patients can withstand the intervention. Only fully encapsulated foci should be operated on and by means of the least complicated procedure. To the adherence to this principle the author ascribes the favorable results in the reported case.

Enlargement of Mammary Gland Following Prostatectomy.—To a report, made in 1920, of two cases of gynecomastia following prostatectomy, Kondoleon adds a third case. In a man, aged 62, there developed five months following suprapubic resection of an adenoma of the prostate a bilateral swelling of the mammary glands. The enlargement persisted several months and then gradually disappeared. The author found reports of two other cases in the literature, which brings the total number to five. He believes that one is hardly justified in assuming the existence of a prostatic internal secretion that inhibits the growth of the mammary glands. The experimentally as well as clinically demonstrated relation between the mammary and generative glands makes that hypothesis more probable which assumes that the obliteration of the spermatic cords, which usually follows prostatectomy, impairs the functioning of the testes and by this influences the mammary gland. However, the author thinks that the theory of a prostatic internal secretion cannot be disproved.

Aspects of Umbilical Colics in Children.—According to Philipowicz, the relapsing umbilical colics of children are characterized by severe attacks of pain in the region of the umbilicus. They often appear suddenly without previous disease symptoms. The children become pale and weak and begin to vomit. The duration of the attacks varies. In some cases eclampsia develops. If the attack is of minor severity the children recover quickly until, after days or weeks, they have a new attack. In others, the general condition becomes markedly impaired, their faces become grayish and old looking, and constipation develops. Moro, who first described this condition, assumed a neuropathic predisposition which leads to neurovascular crises with resulting acute anemia. Friedjung thought of hysteria during childhood, and both he and Moro tried psychotherapy and were successful in some cases. Küttner and von Winiwarter, however, considered the umbilical colics as caused by disorders of the vermiform appendix. Appendectomy relieved the condition in many cases and frequently a suppurative appendictis was discovered. The author likewise obtained favorable results with appendectomy in eighteen cases of relapsing umbilical colic. In one of these cases, however, he made an observation that he thinks will throw new light on the etiology of relapsing umbilical colic. Laparotomy revealed that the appendix was long and in the last third slightly angulated. There were no changes in the mesenteriolum. Following appendectomy, inspection of the abdominal cavity revealed in the mesocolon a chain of enlarged, doubtless tuberculous, lymph nodes about 1 cm. in diameter. Roentgen therapy was instituted and since then the child has had no further attacks of colic. The author is convinced that not the appendix but the lymph nodes had caused the attacks but the operation was of value because it revealed the tuberculosis of the lymph nodes early enough to make their treatment possible.

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War Surgery. V. A. Oppel.—p. 971.
*Endocarditis: Etiology, Immunity. K. T. Gluchov.—p. 982.
Diet in Typhoid. A. Y. Yarotskiy.—p. 989.
Ambulatory Typhoid. B. A. Jitnyikov.—p. 991.
*Widal Reaction in Typhoid Contacts. A. T. Balmagiya.—p. 997.
Roentgenology and Aphonic Diseases of Heart. R. S. Levin and K. D. Lukashik.—p. 1001.

Endocarditis: Etiology, Immunity.—Gluchov, who used forty-four rabbits in his experiments, summarizes his results as follows: 1. Spraying the lymphoid tissue of the throat with small toxic doses of streptococci results in septic endocarditis. 2. Immunization with vaccine or killed cultures of streptococci protects the animal against subsequent toxic doses known to produce endocarditis. 3. Immunization with streptococcus vac-

cine does not protect against subsequent infection with staphylococci, with resultant staphylococcus septicemia and endocarditis. 4. Endocarditis in the experiments presupposes a streptococcus or staphylococcus septicemia. Absence of endocarditis presupposes an immunity as a result of vaccine or inoculations of living organisms. 5. Normally in rabbits endocarditis seems to be associated with pneumonia. 6. A small dose, 1 cc., of streptococcus vaccine, given by way of the lymph tissue protects a rabbit against a lethal dose of living culture.

Widal Reaction in Typhoid Contacts.—Balmagiya reports the results of studies made during an epidemic of typhoid in Odessa in 1929 and 1930. Many persons, in contact with typhoid patients, although never immunized against typhoid and showing no clinical symptoms, had positive Widal reactions. The author believes that this is a latent form of infection. Previous contact with typhoid patients may explain the paradoxical Widal reactions in patients with symptoms of other diseases.

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Variability and Bacteriologic Diagnosis. S. S. Kagarnovskaya.—p. 1051.
Humoral Reactions in Neurosyphilis. G. D. Aronowitsch.—p. 1057.
Nocturnal Enuresis. S. D. Artamonov.—p. 1067.
Massage of Prostate. M. L. Kreps.—p. 1071.
Organic Nature of Atmospheric Concussion. M. A. Sheftyel.—p. 1077.
*Pityriasis Rubra of Hebra. A. N. Beerger and M. A. Versylova.—p. 1081.

Pityriasis Rubra of Hebra.—Beerger and Versylova made a thorough study of one case, including a careful examination at necropsy. The history shows a gradual spreading of the dermatitis exfoliativa until the whole surface of the body was covered. Relapses were frequent. There was never any vesiculation or exudation. The authors believe that the sebaceous glands may be responsible. There was no tuberculous involvement. Contrary to some workers, who place the disease in the age group 40-50, this patient was first affected in childhood (aged 6), coming to the clinic for examination at the age of 56. The patient was under the authors' care for five and a half years. The disease is reported by some workers as secondary to chronic dermatitis. In this case the first lesions were localized on the elbows and knees and were diagnosed as psoriasis. When the patient came under the observation of the authors, the abdomen was covered with spreading, psoriasis-like papules. The skin was red. A brother of the patient has psoriasis.

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Early Diagnosis of Cancer of Stomach and Intestine. L. B. Buchshtab.—p. 315.
Pulmonary Cancer. A. S. Furmann and S. B. Massino.—p. 319.
Malignant Diseases in Five Years of Clinical Study. F. S. Juriew.—p. 324.
*Clinical Aspect of Hypernephroma. I. L. Saitschenko.—p. 328.
*Gynecomastia. A. B. Cheifitz.—p. 333.
Roentgen Therapy in Epithelial Cancer. M. N. Rabinowitsch.—p. 336.
Leukocytic Picture in Inflammatory Diseases. T. C. Toprover.—p. 339.
*Specificity of Intradermal Reaction to Echinococcus. E. A. Chrustschewa.—p. 343.
Vaccination in Coli-Typhoid Group. M. I. Melnik.—p. 349.
*Influence of Hormone of Anterior Lobe of Hypophysis in Animal Experiments. S. Werchratsky.—p. 352.

Clinical Aspect of Hypernephroma.—Saitschenko discusses the theories and clinical aspect of hypernephroma, citing three cases from his own experience. It is difficult to determine the beginning of the disorder when symptoms are absent; however, the triad of hematuria, pain and tumor appear in the second period when treatment is difficult. The second period may include varicocele, fever, edema, cachexia, obstruction of the intestines, pigmentation of the skin (as in Addison's disease) and metastases. The condition is chronic, lasting many years (fifty-four years in one instance reported by Askanadzi). Disagreeing with other workers, who believe that it may be derived from the parenchyma of the kidney or that it may be an endothelioma, perithelioma or derived from the wolffian bodies, the author agrees with Grawitz that the tumor originates in the suprarenal. Nephrectomy seems the best treatment.

Gynecomastia.—Cheifitz finds 164 instances of gynecomastia in the literature, 5 from his own experience. Histologically, the author believes this a fibro-adenomatous condition of the male mammary glands. The condition may be another instance of sexual irregularity governed by adenoma of the hypophysis. The author advises operation.

Specificity of Intradermal Reaction to Echinococcus.—Chrustschewa believes this test may prove of great value in echinococcus diagnosis. Ninety patients with various diseases were tested and ten were found positive, with the test in each case specific. The reaction was considered positive when the skin at the site of injection in from three to five minutes appeared as a white papule from 1.5 to 4 cm. in diameter, the skin surrounding the papule at first mottled and later solid red. At the same time a control of physiologic solution of sodium chloride is injected on the other arm. An eosinophilia before and after the intradermal test must be proved before the condition can be diagnosed as an echinococcus infection.

Influence of Hormone of Hypophysis in Animal Experiments.—Werchratsky injected into guinea-pigs daily 1 cc. of hormone extract obtained from the urine of women in the second period of pregnancy. The animals died after the twelfth, nineteenth and twenty-six injection. Microscopic examination of the genital organs showed, in the ovary, corpus luteum formation; in the uterus, an hypertrophy of the endometrium and muscularis; and in the collum uteri and vagina, hypertrophy of the epithelium. The mammary glands also showed hypertrophy and hyperplastic processes with colostrum formation. In pregnant animals, injection of the hormone resulted in abortion. Diuresis was noted. The author does not believe that the hormone is of pituitary origin but that it is a product of pregnancy itself and is present in the chorion and placenta.

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Aphonic Heart Beats. W. A. Bekenew.—p. 421.
Localization in Double Pulmonary Tuberculosis. S. Wainer.—p. 430.
*Erysipelas Carcinomatosum Cutis. E. G. Tschernjachowsky and W. Bondartschuk.—p. 433.
*Calcium Content of Blood of Pregnant Tuberculous Women. J. O. Krijewsky.—p. 438.
Influenzal Pneumonia in Children. J. N. Bistrenin.—p. 441.
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Dislocation of Crystalline Lens into Outer Chamber. M. Gamelin-Natansohn.—p. 453.
*Trachoma: Vaccine Therapy with Bacillus Granulosis. H. Stepanowa and N. Azarowa.—p. 456.
Diagnosis and Therapy of Nystagmus Among Miners. M. M. Kolik.—p. 458.
Recurrent Paralysis of Oculomotor Apparatus. I. J. Hamarnik.—p. 462.
Heliotherapy and Gynecology. W. G. Dick.—p. 499.

Erysipelas Carcinomatosum Cutis (Küttner).—Tschernjachowsky and Bondartschuk find the condition in 2.5 per cent of all cases of mammary cancer (six instances noted from their own experience). The disease consists of two processes: primarily a blastomatosis, secondarily infection. The pathologic changes lead the authors to designate this disease as "lymphangitis carcinomatosa."

Calcium Content of Blood of Pregnant Tuberculous Women.—Krijewsky and his co-workers compare the calcium content of the blood of pregnant tuberculous and nontuberculous women. They find that the calcium content in tuberculous women is greater in the second period of pregnancy. The content in tuberculous women is greater than in nontuberculous women. The authors conclude that the tuberculous process influences the calcium content of the blood of pregnant women.

Trachoma: Vaccine Therapy with Bacillus Granulosis.—Stepanowa and Azarowa developed a polyvalent vaccine of Bacillus granulosis. Ninety-two patients, sixteen with conjunctivitis and the rest with trachoma, were treated. The vaccine was administered as drops, by rubbing the follicles, and by parenteral and subconjunctival injection. Control tests with vaccines of the pneumococcus, Koch-Weeks bacillus and Morax-Axenfeld diplobacillus were without result. Vaccine therapy of trachoma proved harmless and did not call forth secondary reactions in any of the patients treated. The influence on the trachoma process was favorable objectively and subjectively. The results so far pointed to specificity of Bacillus granulosis antigen in trachoma infections.

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Muscle Anomaly Rarely Seen in Man and Corresponding Muscle in Apes and Subapes. G. Hjelmman.—p. 421.